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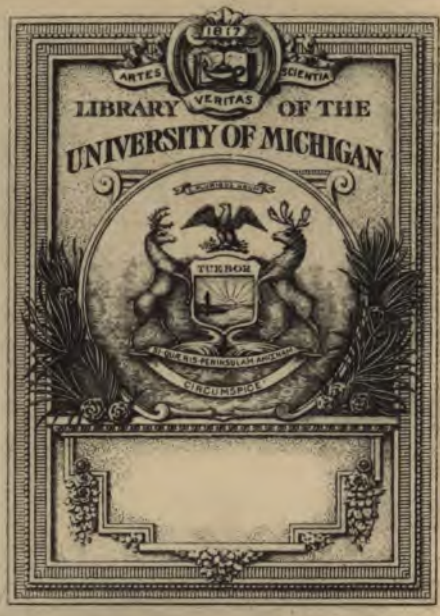

THE GIFT OF

Prof. P. W. Slosson

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THE PSYCHOLOGY

OF

FROEBEL'S PLAY-GIFTS.

BY

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Of the Chicago Kindergarden College.

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INTRODUCTION.

Under the title of Play-gifts we include that portion of Froebel's work usually called the Gifts and Occupations, such as are employed in the kindergarden. The attempt is here made to organize them according to their fundamental principle, and thereby to put them into their psychological order, which will show their educative value.

The appreciation of the worth of the child, which seems just now to be dawning upon mankind in all its splendor and fullness of meaning, is one of the greatest facts of our time, and is its supreme educational fact. The movement is an outcome of the age, but it finds its mightiest expression in Froebel, who was filled with the

idea and gave to it his life. Moreover, he was the first man who in any adequate sense developed the instrumentalities for unfolding the child in harmony with its own nature. Such is the purpose of these Play-gifts.

Still, much remains to be done. The kindergarden is as yet hardly more than the seed-corn whose planting is to be completed by the incoming generation, with the happy prospect of a vast harvest in the future. One of its advances must be in the way of theoretic formulation, which Froebel did not, and probably could not, give. Froebel is not to be regarded as a very successful formulator of psychology, even of that psychology which lies at the basis of his own work. He was a great maker of educational instrumentalities for developing the child, in fact the very greatest in history; but he never did give, and apparently could not give, an organized expression of what he had done. Rightly taken, he was a far better thinker with his hands than with his brains.

It may seem presumption to some ardent disciples to try to improve upon Froebel. But the business of writing has in it always a concealed vanity. The author of a book must have a lurking egotism that he is going to do something which nobody else in all antecedent time has done. He may be mistaken, usually is; still he would not write and certainly ought not to write his book unless he believes that he is able to do

a better thing than any of his predecessors has done. So much of self-esteem may be pre-supposed by the very act of taking pen in hand.

Still this book claims to be emphatically Froebelian, resting upon faith in Froebel's work, and deeming him the greatest of all modern educators. Let us express our position in this regard a little more fully.

In the kindergarden world of to-day there are three main attitudes towards Froebel: the stationary, the evolutionary, and the revolutionary.

To the first class belong the literalists, who by word and deed show that their belief is that the child exists simply for the kindergarden, and not the kindergarden for the child. There must be no change from the transmitted text, no variation from the established ritual, unless the audacious innovator wishes to be put down among the burning heresiarchs in a nether circle of the kindergarden Inferno. Instead of Froebel's motto: "Come, let us live for the children," we seem to hear this revised edition: "Come, let the children live for Froebel." In such fashion the crystallized formalists, unconsciously, doubtless, turn their master's doctrine inside out, contradict it in its very heart, pervert Froebel till he would not know himself. To this class the present book has no ambition to belong.

Then there is just the opposite class, the revolutionists, who react so strongly from the fore-

going fetich-worshipers, that they rush headlong to the opposite extreme, and become followers of the Destroyer, veritably the Satanic element of the kindergarden. It may be questioned if these should still be called kindergardners, their object being to destroy the kindergarden. They are the Froebelians who are doing their best "to dethrone Froebel," bearing a strong family resemblance to those fallen angels of the old Mythus, those children of God who conspired to dethrone God. Of course the present book would not for the world enroll itself in this class.

Finally there is the middle or mediating class, which insists upon being neither stationary nor revolutionary, but evolutionary, unfolding with the progress of the time, keeping step to the spirit of the age, whose watchword is evolution in its widest and worthiest meaning. Here we place ourselves, worshiping neither the fetich on the one hand nor the fiend on the other. Our belief is that Froebel has given to the world a seed-thought which is to be developed into its fullness by and in the great kindergarden organism, whose principle of existence must be growth, not being crystallized on the one hand, not being destructive on the other.

We have placed all the Gifts and Occupations under the much-needed common name of Play-gifts (*Spielgaben*), which name comes from their

inventor. We also put the whole stress of our book upon the Psychology of the Play-gifts in their immediate genesis. Hence it comes that we have very little to say of what may be called the Morphology of the Play-gifts, which deals with the manifold combinations of these Forms after they have been generated. That is, we do not try to teach the manipulation of the Gifts and Occupations, we say nothing of those well-known Froebelian terms: Forms of Life, Forms of Beauty, Forms of Knowledge. These are the proper theme of Morphology, or the Science of Form.

Undoubtedly Morphology is based upon a psychical process, like everything else in the world; there is a psychology of all these combinations of Forms in both the Gifts and Occupations. But, as before said, this part of the subject lies outside of the present treatise, though it may be our portion to take up the same hereafter. Still, if the eager student desires at once a more exact nomenclature for expressing these two divisions, let them be named, first, the Psychology of the Method of the Play-gifts (Methodology), and, secondly, the Psychology of the Forms of the Play-gifts (Morphology).

The psychical movement of thought here employed is often deemed unreal, far-fetched, fantastic. To the sensuous mind all thinking appears fantastic and is so branded by it, at times

with a considerable outpour of insulted dignity proceeding from a profound feeling of its own ignorance. But how can the case be helped? To the senses thought must seem merely a product of subjective fancy turned loose and allowed to roam at will in the fields of No Man's Land. That thought is creative, creating anew the objective world of things, the sensuous mind cannot conceive, because it cannot truly conceive (grasp creatively) anything whatsoever. True conception is not simply an imaging, but an ideal creation of the object.

So Psychology has here the emphasis, and well it may have, being that science in which the spirit of the age just at present is most busily and most deeply mirroring itself. But what Psychology — whose? Not the old rational Psychology nor the new physiological Psychology, though both have brought and delivered their message. Not the Spencerian, Herbartian, or Hegelian Psychology, though each has its place in the history of the science. The psychological formulation of the present book is taken directly from the form of mind itself, from the Ego with its threefold process inherent in every act of cognition. (For a fuller development of this view of Psychology, the author must refer to his work, *Psychology and the Psychosis*.)

Still, the earnest kindergardner, free of all the schools of Psychology and innocent of its detailed

study, can, we believe, get the bearing of the present book with a fair degree of application. Undoubtedly the procedure is carefully ordered, and such procedure has to have its nomenclature at every important step, but the object of this nomenclature is to give clearness and definiteness to the somewhat complicated movement of the thought. So, what at first seems an obstacle may at last turn out a friend in disguise.

On one point, however, we confess ourselves to be in open revolt against kindergarden usage, and refuse submission. It is in the spelling of the word *kindergardner;* we cannot bring ourselves to associate with that awful linguistic monstrosity *kindergartner*, which is neither German nor English, nor of any other known speech, being an unearthly hybrid comparable only to those monsters, half-man, half-beast, which Dante saw in the ditches of the infernal world. The full German word *Kindergärtnerinn* has been introduced into some writings in English (for instance by Miss Lyschinska). This recognizes the trouble, but does not solve it satisfactorily, in our opinion. The word *kindergarten* might pass in English, but the change in its derivative involves it also. We are aware of the objection to this spelling of ours, namely, that a German and an English word are united in a compound, but really *garden* is likewise German (Saxon, Platt-deutsch), and though it be spelt

with a *t*, this is almost universally pronounced as a *d* among English-speaking people. At any rate we cannot be brought to designate any human being by such a monstrous name, certainly not those whom we confess to be the nearest and dearest to us of all sublunary beings, namely the kindergardners.

Coming back to the Play-gifts, we shall divide them primarily into three grand divisions, to each of which we shall devote a chapter. These will be set forth in the following order:—

Chap. I. The First Gift (Potential Gift).

Chap. II. The other Gifts (Quantitative Gifts).

Chap. III. The Occupations (Qualitative Gifts).

It will be observed that we have placed the First Gift in a Chapter by itself, parallel with the other two divisions. The ground of this classification is to be unfolded in the course of the following exposition, so that we may now drop all further preliminaries and come to the main business at once.

CHAPTER FIRST.

THE FIRST GIFT (POTENTIAL).

We have already stated that the First Gift is put into a chapter by itself, co-ordinate with the two other chapters of the present book. Within itself it has no genetic movement like the Second Gift; it remains implicit, potential, undeveloped, or at least mainly so. Its six Balls cannot be said to be derived, one from the other, in any way; they are chiefly repetitions, one of the other, the chief difference being that of color.

Still, in this Gift we shall begin to find the inner educative principle which belongs to all the Play-gifts of Froebel. Here we shall have to consider the Ball, which shows in its conception an external psychical movement which corresponds to the child's mind, and so calls it forth, excites it in its primal stage.

The First Gift consists of six Balls, covered with a soft netting of worsted, elastic, showing six colors of the spectrum — the primary, red, yellow, blue — and the secondary, green, violet, orange.

If we notice more closely the leading items of this Gift, we find the following: (1) The Ball is, first, "the symbol of unity," as Froebel often declares; (2) multiplicity, however, is brought into this unity by the six Balls; (3) a unity of qualities is maintained in the six Balls, they are alike in size, form, softness, elasticity, etc.; (4) multiplicity, however, is brought into this qualitative unity by color, each Ball being of a different color.

Thus we find, after a little analysis, a double unity and a double multiplicity (or difference), the one being quantitative, and the other qualitative.

Accordingly there is a suggestion or intimation in this First Gift of the two grand divisions which are to follow, in general called the Gifts and Occupations. The former are quantitative, primarily geometrical, and may be at times named the geometric Gifts, yet they have a strong current of arithmetic (counting) underneath: the latter, the Occupations, we shall see, are chiefly concerned with the qualities or properties of bodies.

Of course, it will be understood that what we

here have said concerning the First Gift is not yet unfolded — is still implicit within the same; in fact, the object of the present book is to develop these faint intimations into something like fullness and completeness. In profound harmony, therefore, with child-nature and with his own nature (the two were grown together in him), Froebel has begun his whole series of Gifts with the one which may be considered the Gift of Anticipation (*Ahnung*).

We have, for this reason, placed the First Gift as the grand overture and introduction to all the rest — namely, the Gifts and Occupations. It is not merely the first of the Gifts, though it be that too; it is also the first division of the entire theme, and is co-ordinate with the other two divisions. It shares, by a kind of instinct, in the characteristics of both Gifts and Occupations, it is the germ of which they are the unfolding.

Here, then, lies the primal unconscious thought, the ideal creative principle, as yet undeveloped, implicit, premonitory — the faint, prophetic foreshadowing of what is to be. It is the infantile lisp which has babbling within itself the coming word and all that human speech can utter. It is supremely the Gift belonging to babydom, intended for the nursery mainly, and giving echo in its deepest note to the new-born soul. The first Gift is, therefore, a kind of

speech, endowed with a voice intelligible to the speechless infant (*in* and *fans*), and calling it forth, educating it (*e* and *duco*) into its earliest self-utterance, into the primal expression of its Ego.

Now we have to select a name for this First Gift, a name which will be most significant of its character. Among the many epithets applicable to it, our vote is for the word *potential*, designating the fact that it is a potentiality, not yet a reality, yet always working to make itself real. Accordingly, we shall call this First Gift *the Potential Gift*. It connects with the quantitative Gifts directly through the Ball, out of which the latter are deduced; then it connects with the Occupations (qualitative Gifts) through the properties of matter common to both. All of which is, of course, to be unfolded in the forthcoming exposition.

The fundamental character of the First Gift is, therefore, that it is a potentiality, undeveloped yet developing, implicit yet becoming explicit. In psychological speech, it is the first or immediate stage of the Psychosis.

It may be affirmed with truth that the First Gift, as the Potential Gift, above all others is in the deepest correspondence with the infant, who is supremely a potential being, the unrealized man, and yet contains the germs of all culture, the possibility of all progress. Take the Ball;

it is the child's first plaything, the earliest friend who can talk to the new unspoken soul, itself incapable of talking. But the Ball is not dropped with the passing of infancy; it goes out of the nursery into the kindergarten; beyond the kindergarten it flies into the hands of the schoolboy; from youth it passes into the recreations of even the grown man. Thus the Ball is a universal plaything, perpetuating itself through several ages of the human being. Still it keeps its potential character to the last. For the grown man too has his potential element hovering obscurely around all that he may have realized or can realize; enveloping his sphere of conscious life lies a vast, quite illimitable periphery of unconscious existence, in which lurk, darkly fermenting, all the possibilities of himself and of his race, as well as all the inheritances, still dimly working in him, of that by-gone world from which he has sprung. So the Ball, as a representative of the grand human potentiality, is not so easily superannuated.

There is something in the nature of affection in the Ball when taken into your hand, especially one of these soft, pliable, responsive Balls of the First Gift. Do you not feel its gentle pressure upon your palm? It is trying to join hands with you in friendship by its first act, and you cannot help responding with a slight caress; your very organism must give answer with a little kiss.

You cannot blame your hand if it soon closes more passionately upon that Ball, with an eager embrace, to which the latter replies by a stronger and warmer osculation imparted to your palm and fingers. There is in it a yielding yet deeply responsive nature — it loves you and how can you help loving it? You nestle it, you coddle it, you rock it and swing it with both hands, you toss it up into the air like a baby and catch it coming down with a smile. It has all sorts of domestic suggestions — that of a nest with its birdling; you can house it between your palms in a cosy little home.

To the child the Ball lives, from the start he regards it as an animated thing, and does not get over his living intercourse with it for a long time. And certainly for him it has a voice, speaking to him, and calling him out of his dumb self, communicating to him important matters otherwise unutterable. And I have seen the kindergardner play with the Ball in such a sympathetic manner that her radiant face showed that she had returned into the soul of infancy and was taking deep draughts from that primal fountain of joy and hope along with the little ones over whom she had guidance.

Looking again at the First Gift we see that it contains more or less implicitly both the Gifts and the Occupations, both the quantitative and the qualitative elements, which are to unfold out

of it into reality. The Ball connects it with the Second Gift; while color, elasticity, and other properties suggest the Occupations. Yet the First Gift is a sense-gift, immediate; it has not the reproductive principle which characterizes the Occupations.

THE BALL.

There are certain characteristics of the Ball which the kindergartner will take delight in thinking out, as this plaything is the starting-point, and, in fact, generative principle of a large portion of her vocation. It begins so many things in her work that it comes to possess a peculiar fascination for her mind. Here, too, it is proper to note with what love and fullness Froebel has treated of the Ball in his writings.

We shall append at this place some cardinal thoughts upon the Ball.

1. The first statement usually made about the Ball, is that it shows unity. But what kind of unity or oneness? For there is a kind of unity which is dead, lifeless, without process; then there is just the opposite kind, manifesting all the movement and richness of the spirit. Let us think.

The Ball is, in the first place, round, when considered as a whole; it has no developed point or line, no edge; the one center controls the periphery through the radius. Such is the conception of the unity of the Ball. It is self-cen-

tered; its outer manifestation is determined by the one central principle, always equidistant from the surface.

Like the self-centered human being (or Ego), its outward seeming or conduct is ruled by the one controlling center within. Thus it suggests the self-contained element in man, the possibility of moral control. The thought of the Ball always brings it back into relation with itself; so it evokes the conception of the self-related, the self-determined, which is just the process of freedom.

Doubtless some reader of ours will think these terms and these ideas as very abstruse speculation about a very simple thing. But they all seek to express the one fundamental thought which utters itself in the unity of the Ball. We must also add, that this thought is not lifeless, but is a process.

2. The Ball has only surface manifested, and this is unlimited surface, that is, not limited anywhere by point or line. Hence the Ball has been sometimes taken as the symbol of the Unlimited, the Infinite — yes, the Divine. Points and Lines by the millions are implicit in it — potentialities which are to become realities.

3. The Ball is, accordingly, a small universe of possibilities. It is the possibility of all points and lines and bounded surfaces, hence of all forms. Being round, it is also the possibility of

all directions; it may turn itself any whither if not stopped by some developed point or line. This is its mobility and has a close correspondence to the child-mind, which is likewise an infinite possibility of direction. What turn will this infantile soul take in its unfolding? As yet, it is potentially all, it is the round rolling Ball, or at least the inner counterpart thereof. No wonder that the Ball speaks to the infant in the cradle as nothing else can, declaring in all its motions as well as in its shape its kinship to that seedling of a soul recently become visible in flesh.

4. We must also think, that the Ball through its external rotundity suggests everywhere the return into self, which is the fundamental fact in the process of the Ego, and hence the basic principle in every psychological movement.

5. The seen rotundity of the Ball gives a suggestion of the unseen center, which is the point within, and is ideal. The visible manifestation, which is here the round surface of the Ball, calls up in the soul of the child the invisible center which determines that round surface. That which is seen goes back to that which is unseen as its source, cause, determinant.

In like manner, though more dimly, the felt rotundity of the Ball projects darkly the inner central point which is unfelt as well as unseen. The infant, clutching in his little hand the little

Ball, begins to feel its rotundity; with such feeling, however faint, starts a corresponding spiritual unfolding; the tiny fingers closing round the Ball feel the turn within, and have a premonition of that inner point which determines the outer.

Thus the Ball by its very shape opens the soul's anticipation through the senses, in fact, through the very humblest, least definite of the senses, that of touch. The Ball seems to have the power of breaking the spirit's shell and letting the chick out.

And here we may be permitted to give a practical suggestion. Let not the Ball be made too large; the little hand or hands must be able to inclose it, otherwise this sense of rotundity will be dimmed or quite lost. The hand or the two hands surrounding the Ball make a Ball, the second Ball, which incloses and feels the first Ball, feels that this is a Ball by making itself a Ball for inclosing and sensing and taking up the same. Through such adaptation the organism becomes that which it seeks to make its own. So the hand *balls* itself to receive the Ball (in some languages the closed fist is said to be *balled*). Now, it is evident that if the ball be too large, the little hand cannot perform its part, and there will be no sense of rotundity, or a blurred one.

6. As the child takes up into himself rotundity, first through tactual and then through visual sen-

sation, he must project its invisible counterpart, which is its determinant, namely the central point already mentioned. Let the sensation or feeling of the round be never so slight, it cannot be without the inner suggestion of the center.

But this inner central point is the negation of all extension and of visibility. Through the Ball the child's soul passes from the visible to the invisible, as the source and cause of the visible. And this invisible element is not merely negative, a canceling of the external and visible, but is positive, is truly the creative principle of the thing seen. For we must always keep in mind that the unseen central point with its radius is what creates the rotundity. In like manner, the spatial or extended is determined by what has no extension — the ideal point.

Thus through the Ball the child-soul begins its career of education, which is, in general, the rise from the sensuous to the supersensuous as controller, the rise from the subjection of mind to the mastery of mind in the realm of matter.

7. In this connection we may take a glance at Symbolism, that much-discussed doctrine in Froebel's system. Granting that his use of the word is not always clear, and sometimes vacillating and even reckless, we still may catch from our present standpoint a general outline of his meaning.

The most inveterate objector to presentiment must confess that this ideal germ, this unsensed

point at the center of the sphere, is in the child, else it could never come out of him. Otherwise he could never learn geometry, which must be at last his own inner evolution of the point, line, surface; he could never acquire the idea of rotundity, and consequently he could never know form.

For this reason, primarily, the Ball may be called symbolic. It is an outer shape which images the child's Ego and its process (and the grown man's Ego too, for that matter). The child plays with the Ball, and through such play his Self is called out of its sleep, and becomes active; thus self-activity begins, and the Ego is led to go through its own process by means of its outer counterpart or symbol.

8. Thus, what we may name the external process of the Ball, calls forth the internal process of the child's Ego. This is the main educative fact under the present head. So there comes to light the connection between point and periphery, inside and outside, visible and invisible, ideal and real. This thought takes the form of a connecting line, the radius, which joins the Seen and the Unseen.

In thinking, or rather sensing, the Ball, therefore, we have the following process: —

First is the outer surface or periphery, that which is seen or felt, hence the sensuous, the immediate; it is that element which first appeals to the child through his senses.

Second is the opposite, that which is different from the sensuous and is absolutely separated from it — the negation of surface and extension. This is the central point.

Third is the return to the surface from the center, which creates or determines the periphery with its rotundity.

This process we shall develop more fully hereafter in connection with the psychology of the Ball.

9. The child has the immediate sensuous experience of being himself the center of a Ball. Very early does he look up and behold the sky overhead, which surrounds him on all sides with its dome. Still he is the center always, the center of this hollow Ball, or half-Ball which goes with him everywhere and environs him in every direction. As he sees a little Ball outside of himself held in his little hand, yet with its center inside, so he sees himself inside a great Ball, he being himself that center. : He goes forward and may long to reach the wall "where the world comes down," but it recedes as he approaches; let him go as far as he pleases he remains the center of the Ball made out of sky, he cannot somehow run away from his central position. He soon discovers that he is the determinant of this Ball; he makes the round dome above, the circling horizon yonder, in fact the whole overarching canopy of heaven; with every step, too,

he must make it anew, and so reconstruct and repossess his former possession.

Thus the most persistent sensuous fact present to the vision of the child is that he is the central point of the material universe about him, which shapes itself like the inside of a Ball, and covers him over with a kind of protecting roof as far as his eye can reach. He finds that he lives in a Ball or Hemisphere, ever changing in space with him, yet ever remaining the same in all his wanderings. So he sees in the vanishing a reappearance; in the transitory is always the abiding, and within such a shifting yet permanent world is his home, just at the heart of it.

But he must remake it, and forever be remaking it — this his outermost physical environment. Such also he is to do with all nature — remake it and transform it into the abode of his spirit. This is the meaning of our modern industrial progress. Still further, and chiefly, the child is surrounded with an unseen institutional world, a vast overarching unseen canopy of which he is the center and which protects his soul, the invisible yet essential portion of himself. This institutional world also he is in the course of his unfolding to remake, to reform, to repossess, and thus to come into a true ownership of his spiritual inheritance. All this is again symbolic: his sense-world is the symbol of his spirit-world, suggesting and calling for the unseen in the seen.

10. We must repeat here that the word Gift in the present connection means something given in the sense of pre-established, prescribed, and presented in advance to the child. This is true of all the Gifts and Occupations, yet they have different degrees of prescription. In the First Gift the child is almost wholly the recipient without changing the material or the thing given; still he is to move more and more toward making over or transforming what has been given him, till he gets to be the producer of his own world or the maker of his own presuppositions. Thus he is always advancing toward a completer freedom.

So the child in the present Gift is essentially receptive. But to receive, he has to act; he sees, feels, tests the Ball in various ways; the senses and the will he employs in receiving. The red Ball is usually taken first, as its color is the most striking or stimulating to the eye which has to be roused from its infantile somnolescence. A string is attached to the Ball, showing control by an outside power, by a providential hand; so the Ball is the image of this early stage of the child, who soon demands that the string be put into his hand, that he be the controller; as fast as possible, he is going to be his own Providence, though this end he never quite attains even as a man.

In the play with the Ball, motion of many

kinds begins to manifest itself, as the Ball is the possibility of all directions. Circular motion in which the Ball by means of the string attached is made to come back to its starting-point in space, has a special interest for the child, and intimates the free motion of the earth around the Sun, which he is afterwards to comprehend. The central luminary has its string attached to the little earth-ball and is pulling or rather whirling the same around itself in an orbit, or self-returning circle. Is not the Sun the bright luminous hand of the Lord (otherwise invisible), and is not gravitation the string he has tied to the little earth-ball, which he keeps whirling around and around through the Heavens, possibly for the amusement of the baby angels up there? Thus our First Gift has its place in the kindergarden of the skies, literally full of whizzing balls encircling central Suns without colliding — the happy stars of the firmament forever playing and singing together in the celestial kindergarden, which began in the primordial chorus of creation.

11. A suggestion in regard to the Ball of this First Gift may be permitted at this point.

It is said that the original Froebel Ball was wound from the center and covered with a soft network. The modern rubber Ball has not this idea of being unfolded or generated from the center, which idea is necessary to the genetic move-

ment of the Gift, and is what constitutes the psychical correspondence of the Ball with the child.

The so-called clipped Ball, which is made of yarn in the form of radii springing out of the center, thus suggesting the movement from the central point outwards, has been warmly recommended for the older children in the kindergarden.

12. There is no doubt that to employ six Balls in the First Gift for the nursery is a mistake. The result is complication, confusion, and final aversion to the Gift; many a kindergardner will confess that she, of her own accord, has reduced the number of these Balls in the interest of good work and good order.

The proper number of Balls for this Gift, at least in the beginning, is three, which makes it far simpler and easier to handle, and moreover, is in harmony with the movement of the Ego itself. But chiefly, there are the three primary colors which in the order of Nature are first and give the natural starting-point, forming a whole by themselves, nay more, a Psychosis. Then in due time will come the secondary colors, and even the tertiary, though color must not be allowed to run to excess in the kindergarden. Finally, for the sake of the number idea three is far better than any other number, being in direct numerical correspondence with the stages of the

child's mind, which are one, and two, and three, this last being a return and union of the other numbers (one and two). There can be no doubt that number dawns with the dawning of the Ego and its three stages, which, when they take place, are faintly, unconsciously numbered by the child. The mind itself is stamped in its very creation with the number three, which it has to reveal when it acts and in every act. By means of the three Balls, each a separate unit emphasized by form and color, yet all combined together in a box and by various plays, the implicit number in the child's Ego is wakened out of its unconscious slumber and begins to become explicit. Now it is manifest that if we have more than three Balls, or even less than three, there is a lack of correspondence between the inner and the outer, between the Ego and the object, which produces a jar, a discord, where there ought to be harmony. Though the dissonance seem slight, the tender budding child-mind feels it and is delayed. As obstacle is not difficult to re-
t[illegible] dner should look after this
', [illegible]ner presentation of the First
) [illegible]nical nature of the child.

PSYCHOLOGY OF THE BALL.

In making the transition from the First to the Second Gift, the name Ball (in German *Ball*) is changed to that of Sphere (*Kugel*). Froebel gives certain external distinctions between the two, such as softness and hardness, difference in elasticity, etc. This is well enough, but we would fain believe that there is some inner reason for the transition from Ball to Sphere. Though these two words are employed in common usage interchangeably, we shall try to have them do service as bearers of two distinct meanings in the following exposition.

Primarily, we are to penetrate to the conception of the Ball, which signifies the creative principle of it, the thought which generates it. Conception is not merely the reproduced image of the Ball, its outward shape drawn from memory, but the genetic energy creating it grasped by the mind.

The Ego in conception enters the Ball, as it were, and makes the same anew after its own ideal process; to conceive an object is an inner creation of it after the thought which originally made it.

The conception of the Ball, therefore, being itself the movement of the Ego, will show the inherent psychical process thereof, namely, the Psychosis.

The following exposition, which seeks to set forth the total conception of the Ball, will move through the threefold development of it in harmony with the underlying process of mind. In the first place, the Ball is to be grasped simply, as it is in itself; secondly, it is to be seen as it is taken up by the child's senses and united with his Ego, in which stage (the separative) two Balls come before us, the outer and the inner; thirdly, the Ego, having sensed the Ball, returns to it and beholds in it the movement of itself in three stages, which it specially designates, thereby revealing the concrete Ball or the Sphere.

Such is the transition which we shall now unfold on psychological lines, marking carefully the various steps. The purpose is to bring out prominently the inr elements of the Ball, which are indispensable f deriving the forms of the Second Gift, and out of them the rest of the Play-gifts.

We are, then, to witness the following ges: —

. The process of the Ball as it is in itself — m within outward and back again — Center, ery, Radius.

II. The process of the Ball in relation to the organism — from the outside going inward and then back again — the sensed without, the unsensed within, the union of the two in the spherical.

III. The process of the Sphere with its central Point, diametral Line, and intersecting Plane.

These brief designations in advance are to unfold into their full meaning in what follows. Let the student, however, note the psychical movement which these three stages suggest at the start, and observe that the whole sets forth the transition from the simple Ball to the concrete Sphere through the intermediate process of the Ego.

I. First, then, let us conceive the Ball, as it is in itself without any relation, as immediate. What are the essential factors of it? Let us take it in the hand and look at it closely and think; let us find the elements which it must have in order to be. We shall observe three.

1. The Center. This we put first, as it is first in thought, though not first to the senses. It is the determinant primarily, the genetic point; it determines the object to be a Ball. The creative germ of the Ball is now conceived in the Center. So we employ the word metaphorically when we speak of coming to the center of things.

2. The Periphery. This is that which is determined by the determining Center; hence it

is the separated, not the concentrated; it is the opposite of the central point which is now conceived as propelled outwards in all directions to the limit, which is the Periphery. The inward Center thrown outward becomes the extended surface, accessible to the senses.

3. The Radius. This is properly to be regarded as the return from the Periphery to the Center, conceived as a connecting line from the outward to the inward. Not till we have the Periphery can we explicitly have the Radius, as uniting the determined Periphery to the determining Center, though we have it implicitly in the movement outwards from Center to Periphery, which, however, has to be fixed before the length of the Radius can be fixed.

Such are the three simple elements of the Ball when taken as it is in itself. We observe in it the stages of the Psychosis, yet as immediate, undeveloped. Center, Periphery, Radius enter into the primal conception of the Ball when unrelated; but we soon find that the Ball must be related in order to be conceived, namely, related to the Ego, which must now be reached from the outside, through the senses.

II. The Ball as related to the bodily senses comes next in order. We have just seen the Ball it is in itself; now its relation to the organism) be considered.

)r the purpose of understanding this relation

more fully, we may regard the human organism as having an outer surface or Periphery in which are located all the senses. These are to connect the mind with the external world, which stimulates them by some kind of irritation, in contact or at a distance. This stimulation is borne to the brain by the afferent nerves, turns at the invisible central point (Ego) and is carried back to the Periphery by the efferent nerves, thus completing the cycle of sensation.

The resemblance between this process of the organism and that of the Ball just given is striking. The human body is also a Ball with its Center as determinant, with its Periphery and its Radii. But the living human Ball is a self-active process, self-moving, while the dead material Ball is the outer, externalized image, is the *outered* or *othered* counterpart of the unseen process.

It may be noted here that the child of himself will play that he is the Ball, he will enact its part and go through its motions. Thus he unconsciously reflects what his own organism is — a living Ball with its own Center, Periphery, and Radii, which unfolds into activity through playing with the Ball. Yet this is not all: the child not only plays with the Ball, but plays himself to be a Ball, converting himself into a kind of Ball in play. And it may be said that in every kind of Ball-play there are really the two Balls co-operating and interplaying—the animate and the inanimate.

Such is the stage of separation in the present process: the two Balls, the sensing and the sensed; the first takes up the second, yet is called into activity by the second. This relation and interaction between the two sides is what we shall next unfold.

1. The sensed Ball, which is seen or felt. Now we start with the outside, the surface as presented to the senses. The infant closes its tiny fingers around the Ball, sensing the surface of the same; its Periphery, overlaid with nerve tissue, is brought in contact with the Periphery of the Ball, overlaid (in this Gift) with a soft network of worsted, and is stimulated to activity.

2. The unsensed element of the Ball — unseen or unfelt. This, of course, is the Center within, posited by the Ego, which also has such a Center, to which the stimulus goes, and which determines the outer Periphery. Thus the sensible flies to the supersensible as its determinant. The Seen in the Ball calls for the Unseen as its creative principle.

3. Rotundity or Sphericity of the Ball is now given as the complete process of the outer and inner, of the Periphery as seen and of the Center as unseen yet posited as the determinant of the Periphery. Thus while we sense the Periphery and then pass to the Center, we must return from the Center and reconstruct this Periphery as a whole in our thought, which cannot be done

otherwise than by thinking. For we cannot see or feel or sense in any way the total Periphery at once on the outside, some part of it lies beyond the reach of the senses. So we get the idea of Rotundity only through the process, which conceives the entire Ball as created from the Center.

The completed Rotundity is as necessary to the conception of the Ball, as the completed cycle of sensation is necessary to the conception of sensation. We have to create the total Rotundity of the Ball from within, since we can sense only a portion of the same; the Ego has to make the same complete through its own movement.

The Ego has now sensed the Ball and penetrated to the Center, from which it has moved to the Periphery, thus creating the Sphere, which has the total process. For the Sphere cannot be sensed from the outside merely, it must also be conceived from within, created or re-created by the Ego.

In our thinking we have to use terms carefully, and we may name the mentioned transition as that from the Ball to the Sphere, or from the abstract Ball of the first stage to the concrete Ball of the third stage, to which we have now come.

III. We have before us the Sphere, whose process we are to seek and unfold. The first or abstract Ball has been taken up and sensed by the

Ego; its elements again come to notice, but are endowed with a new power, being filled with the creative activity of the Ego.

1. The central Point. The Sphere has not simply a center, but a creatively active central Point, such as is the Ego itself, for the Ego is the self-active principle which, being stimulated by the external object, has gone forth out of itself and sensed the same.

Now this central Point of the Sphere, in order to be central, must generate radii going in opposite directions, moving out from it equally. That is, it must generate the diameter of which it is the center, and which is a right line.

The central Point will show, therefore, the psychical process within itself.

First, it is self-dividing (like the Ego), self-unfolding, and projects itself outward into the Line.

Secondly, it projects itself into opposite directions, into two opposite Lines.

Thirdly, these two Lines, however, are one straight Line with central Point in its middle.

This gives a new element, the diametral Line of the Sphere, to which we now pass.

2. The diametral Line. The Sphere has, therefore, a central Point, which lies in the middle of its diametral Line and creates the same.

Moreover, this separation of the central Point

into the diametral Line, will be threefold, or in three directions, all of which unite at the central Point and make three diametral Lines. These will manifest the three dimensions of the Sphere, since they measure the separative process of the central Point, as it unfolds and creates the Sphere.

We may note, in passing, that the necessity of the existence of three dimensions in the Sphere and in all matter goes back to the threefold process of the Ego which in the first place creates it, and in the second place conceives it by identifying the same with its own triple movement.

The diametral Line reveals a psychical movement within itself.

First, there is the one diametral Line, conceived as the unity of opposite directions in the central Point.

Secondly, there are three ways of conceiving this unity of opposite directions — up and down, to and fro, right and left — or length, breadth, and height, showing the three dimensions in three diametral Lines.

Thirdly, these three diametral Lines are united and concentrated in the central Point, through which they produce the right angle, in fact, the eight right angles possible around the center.

But the diametral Line, sprung of the Point, will show the latter's separative nature and will

move in opposite directions, producing the Plane, to which we now pass.

3. The intersecting Plane. Each of the three diametral Lines, having within itself the central genetic Point, will divide within itself and project itself in opposite directions through the Sphere. Thus the Plane appears dividing the Sphere according to the three dimensions already indicated, and becoming three intersecting Planes, which unite around the common central Point.

Such is the process of the Ball into the Sphere. The Ball with its Center, Periphery, and Radius simply, is sensed and taken up by the Ego, which projects into the Ball its own creative movement and makes it a Sphere with central Point, diametral Line, and intersecting Plane, which are thus the inner determining elements of the Sphere.

Here, too, we observe the psychical Ego revealing itself in the three distinct elements of the Sphere.

First, the Line, being self-separating like the Point, projects itself in opposite directions — up and down, to and fro, right and left — and then unites these two directions into the one Plane.

Secondly, as there are three ways of conceiving this unity of opposite directions, there will be the division into three Planes passing through the Sphere.

Thirdly, these three Planes intersect on the

diametral Lines at right angles, and concentrate around the central Point, making eight corners.

The starting-point of the whole series of Play-gifts is the inner central Point of the Ball as genetic. This genesis will unfold till the Point becomes explicit (in the Tenth Gift as usually numbered), when it will return and generate the starting-point of itself in the Ball, thus producing the cycle of the Play-gifts. But the development of this subject lies ahead of us and cannot be adequately grasped at the present stage.

Looking to the immediate future, however, we may say that the mentioned elements of the Sphere, namely, the central Point, the diametral Line, and the intersecting Plane, will retain their genetic character in the next Gift, and will express or externalize themselves in the Cube, from which they will propagate their creative energy throughout the entire series of Gifts. Herein lies the educative power of the Sphere, whose outer creative process calls forth through play the corresponding activity of the child.

GENERAL TERMS APPLIED TO THE BALL.

We have just seen the Ego determining the essential elements of the Ball as an object, and employing terms which especially designate it. For Center and Periphery, Radius and Diameter belong peculiarly to the Ball, and properly to nothing else.

But the Ego will apply to the Ball terms or categories which are universal, which pertain to all things it may conceive of; these terms likewise apply to the Ego itself conceiving all things, and conceiving itself. They are its most abstract and general terms, since they combine in one word all it can grasp and itself grasping all.

We shall set down and order the most important of these terms here, since Froebel often uses them in his works and applies them to the Ball. They are employed to explain the Ball and other Gifts; such explanation in abstract categories is not to be rated the best, since they themselves need explanation or at least derivation. And this brings us to the main point: such general terms are really derived from the Ego and used by it to express its own operations. Hence they must

be brought back to it and filled with its process in order to mean much. That is, they are to be seen as a Psychosis or some phase thereof. Three of these most common terms we shall interrelate in the process of the Ego, from which they are usually isolated.

(1.) Unity. The Ball is said to have unity and it has; Froebel affirms this as the fundamental attribute or category of the Ball. Still there is something inert and lifeless in mere monotonous unity; we feel that there must be another element in the Ball besides simple oneness. Furthermore, Froebel states that the Ball is the symbol of unity; what does he mean? In our judgment he takes the Ball as an outer visible manifestation of something internal or spiritual, which must ultimately be the Ego or some phase of its movement. Thus the Ego asserts oneness of the Ball as of itself; the Ego is supremely one and the source of oneness or unity; the term being inherently its own, is applied to the Ball which is also one. Yet the Ball is something else, yea the opposite.

(2.) Diversity. The Ball has diversity, which is the contradictory term to unity. For instance, there is a complete diversity, and, indeed, opposition, between Center and Periphery, yet both belong to the Ball. Likewise, the Periphery has in itself diversity at every point, being round.

The term diversity, as well as the thought of it, spring from the Ego which has in its own process the stage of separation, difference, diversity. There could be no such word as diversity predicated of the Ball, unless such predicate belonged to the Ego in advance. It belongs to the Ball likewise, and to everything else which the Ego takes up and appropriates through knowing. Primarily, diversity pertains to the Ego, which projects it, or may project it, into every process of its own.

Yet the Ego does not stop with diversity or separation. It returns out of this second stage to unity, which, however, is not the first simple unity, but a concrete unity, to which we now pass.

(3.) Unification. This term is perhaps the best in the present connection, though others have been employed. The words in its composition suggest the making of one out of what was not one, the going back to unity out of diversity. Thus it hints the total process, which is not the lifeless unity, but the active one — yea, the self-active one, which is the Ego itself.

Sometimes the term individuality is applied to the present stage, and its component words suggest the negating of division, separation, diversity. The Ball is certainly an individual object, and within its limits it asserts its individuality. It resists intrusion, and in the case of the elastic

Ball, it reacts against assault and recovers itself with such force that it rebounds from the assailing object.

Froebel's favorite category was perhaps just this term unification, or life's unification (*Lebenseinigung*). Not simple, abstract, dead unity was this, but unification alive, active, uniting the diverse and separated parts into a process. Here, then, we may make an application of this Froebelian term and put it into relation with the other two.

Unification, in the sense just unfolded, has in it not only unity, but likewise, as already indicated, the total movement which is a return out of diversity to unity. Such is the inner process of the Ego now applied to the Ball; but the same process and hence the same terms may be applied to the knowing of any object by the Ego. That is, the process with its categories here given is universal, though now specially predicated of the Ball; we may say that a stick of wood also has unity, diversity, and unification (or individuality). It may be asked, Why did not Froebel take a stick of wood as his starting-point? Because the Ball is the most perfect manifestation of the Ego's movement found in Nature, as well as the simplest and most common. From the infinite multiplicity of the physical world the right object has to be selected, the one which best embodies and reflects the triple movement of the Ego. That object is certainly the Ball.

Besides the mentioned abstract terms, Froebel employs other sets of them, usually in the form of a triad. *Universality*, *Particularity*, and *Singularity* (or *Individuality*), in one shape or other, are often found in his writings, notably in his "Education of Man." We have to confess that to our mind, these terms remained an alien element in Froebel to the last. In fact, as he grew older, they dropped more and more out of use in his writings. It is our judgment that they were philosophical terms which he picked up while at the University of Jena in his youth, chiefly from the discussions he heard at that time among the students. Schelling was lecturing then at Jena, and his was the great philosophical name, his doctrines being the theme of general comment and disputation.

Like all young thinkers (and some old ones too) who seek to master the nomenclature of a great philosophy, he was mastered by it more or less, and the same fact may be traced in his style during his whole life. There was something in these abstractions which he never fully digested and made his own; they were really not his best utterance of what was best and deepest within him.

In fact one cannot help coming to the conclusion,
r carefully studying his works both of hand
u of head, that Froebel thought far better with
hand than with his head. These Gifts and

their manipulation show order, logical sequence, the keenest insight into their educative meaning as well as into the nature of the child; they very justly place Froebel's name among the greatest educators of the human race. But when he comes to tell what he has done, the word falls far behind the deed; his exposition, though full of intuitive flashes, is deeply defective in order, clearness, pointedness, often repeating non-essentials and often omitting essentials. Still Froebel's writings are to be studied and profoundly studied by the kindergardner, both for what they say and what they do not say; they reveal much which is important for her to know, particularly the limits of the man. For it has been one of the drawbacks of the kindergarden that its devotees heap upon the founder the most indiscriminating eulogy, and thereby repel judicially-minded men by their extravagance. Appreciate by all means, first and foremost; but then discriminate too, if our long and deep affection will not let us criticise.

From the preceding remarks the reader may well infer that we do not intend to make much use of the current Froebelian abstractions in the forthcoming exposition. Still the attempt is to do justice to the thought underlying the Gifts and Occupations, the most fertile educative thought of this century already, and as yet just in the beginning of its career.

From this little excursion we feel like calling the reader's attention back to the Ball, and repeating to him its educative principle, which was Froebel's great insight, and the ground of his selection of it as the first plaything for the child out of the vast treasury of nature. The Ball, with Center, Periphery, and Radii, is an outer Ego, whose supreme destiny is to call forth from its unconscious, undeveloped state the inner sleeping Ego of the infant, and through play to stir the same to self-activity. The Ball is, therefore, educative; in fact, it is the primal educational instrumentality for unfolding the infantile into its heritage of knowledge and power.

THE BALL IN RELATION TO THE EXTERNAL WORLD.

Hitherto we have considered the Ball as it is in itself and in relation to the Ego. But it also stands in relation to the whole external world, and thereby becomes the means by which the child is brought to know the phenomena of nature. The Ball thus stands between the child-ego and the cosmos, being the mediating principle of both sides.

Such is, then, the present thought: the infant through his Ball is being gently led into relation and communion with the whole universe. In one way or other this small round object, being external, is connected with and influenced by all externality, which is thus brought home to the child's mind. A mediatorial instrument we may regard the Ball, though a little plaything for the baby, bearing his Ego to the outer world and helping him grasp it and identify it with himself and thus to know it first in sensation, then in image, and finally in thought.

This characteristic of the Ball was emphasized by Froebel throughout his entire kindergarden

period. Says he in one of his earliest essays on this subject: —

"The child is in himself unity and diversity, and is destined to develop these traits by means of the outer world, for which purpose the Ball with its play is adequate.

"The Ball is the representative of all objects, and hence is the unity and unification of all properties essential to all objects.

"The Ball shows contents, mass, matter, space, size, form, figure; it shows qualities of bodies, elasticity, color, gravity, attraction.

"The Ball is the mediating link between the child and nature."

These citations (and others of like import might be made) indicate his view when he wrote his first published essay on the Ball. (See Lange's edition of Froebel I. s. 41. Translated by Miss Jarvis I., p. 53. This essay was first printed in the *Sonntagsblatt*, 1838–40.)

From a later production of Froebel, we take a few extracts on the same subject: —

"The first plaything of the child (the Ball) must be, as it were, the complete representative of all objects existent in space, and hence the bearer of all the universal properties of these objects.

"The Ball is of such a character that it cannot hurt the child, nor can he injure himself or vthing else with it. The Ball does not excite

the sensual nature of the child, nor does it waken bad tendencies of head or heart.

"In the Ball are represented all the essential properties, phenomena, and relations of the child's environment, as matter, form, figure, size, motion of all kinds as well as repose. Also, space, time, light, color, are brought to the child by the Ball, which thus becomes for him the medium of introducing and knowing the surrounding world."

So much for Froebel, who clearly saw the function of the Ball in the above-mentioned relation. But that which is wanting is the order in which the environing world is taken up by the Ego of the child. Here again the psychological process is to furnish the ordering principle, which will show how the total physical universe in its outlines is received into the child-mind through the Ball. But this part of the subject cannot now be entered upon, though something about it may be given in another place.

In conclusion, we may take a glance back over the total sweep of the First Gift and seek to renew the various thoughts which have been set forth. The earnest student will reflect upon the following points: —

It is the Potential Gift of the whole series of Gifts and Occupations.

It is the first stage of the complete Psychosis of Froebel's Play-gifts, namely, the Gifts and Occupations.

It unfolds the psychology of the Ball in relation to the mind of the child.

The educative meaning of the First Gift must be seen in this relation.

It shows the transition from the simple Ball with Center, Periphery, and Radius, to the concrete Sphere with central Point, diametral Line, and intersecting Plane. This is, moreover, the transition from the First into the Second Gift.

Three Balls having the three primary colors are recommended to be given at first.

A subject left to the further study of advanced kindergardners is the child getting acquainted with the external world through the Ball, which thus becomes the mediating principle between him and the cosmos.

At present, however, we, having made the transition from the Ball to the Sphere, shall pass ıe next grand division of our theme.

CHAPTER SECOND.

THE GIFTS (QUANTITATIVE).

This chapter embraces the Gifts which lie between the Sphere and the Point, or the series which begins with the Second Gift and ends with the Tenth Gift, according to the usual numbering.

As already stated, the general idea underlying the Gift is something given, taken for granted, presupposed, prescribed; it is composed of fixed forms given to the child which he is to take and combine into new forms through his activity, mental and bodily. Then he will pass to transforming his material, and to making the forms hitherto given, which work, however, properly belongs to the Occupations (qualitative Gifts). But the present series of Gifts (quantitative)

has the principle of extension, is space-occupying, and produces its new forms by external combination.

The fundamental fact in this series of Gifts is its inner psychical movement, which, in deep correspondence with the movement of the child's mind, is threefold, and reveals what may be called the Psychosis of the Quantitative Gifts.

I. The Originative Gift. This is the Second Gift, composed of the Sphere, Cube, and Cylinder. Its essential characteristic is originative, genetic; it generates its own forms within, and generates in direct line the other forms of this series till the Point. It is thus the parent Gift of the whole family, in which the domestic relations will often be employed by way of metaphor. Also it may be deemed the potential Gift of this series, bearing in itself implicitly all those which follow. Such is the first or immediate stage, which is now to unfold; origination must separate from itself and pass into derivation, which is the second or separative stage.

II. The Derived Gifts. The name indicates the general character of this division of the Gifts which embraces all the rest of the quantitative series after the Originative Gift. The method of derivation is some form of separation, hence all these Gifts belong to the second or separative stage of the Psychosis in the present series, though each has its own distinctive Psychosis or

threefold movement, all of which is to be unfolded hereafter.

It may here be stated, however, that this Derived Series has its own threefold process, which starts with the Gifts of Concrete Magnitude (real or sensuous separation) and passes to the Gifts of Abstract Magnitude (ideal or mental separation), with the final return out of the Abstract to the Concrete.

In this division lies the main body of the quantitative Gifts, which unfold to the Point as explicit, where begins a new stage, that of return.

III. The Return to the Originative Gift. Out of Derivation we pass back to Origination through the Point, which, though at first derived, becomes self-moving and generative, producing the Sphere and its central Point. Thus we see that the movement of the quantitative Gifts is from Point to Point, going forward to the Point and then returning to the Point, as the seed unfolding through the vegetable process returns to the seed, producing the same, that is, producing itself. Such is the completed cycle of the Gifts, in a line of descent and of ascent or return, whereby the Point as explicit in the last of the Derived Gifts bends back, as it were, and connects with the Point as implicit in the Originative Gift.

The above indicates in brief the psychical

movement which underlies and orders the present (quantitative) series of Gifts, showing their inner conformity to the mind of the child and revealing the ground of their educative character.

In every Gift as quantitative there will be some phase of Form, Number, Measure.

The quantitative Gifts deal primarily with geometric or spatial forms, by which man gets the first control of external nature. The child must follow in his footsteps. Geometry is the science of Space, into whose presence the child is brought by the first act of his existence, the act of birth. The child begins his mastery of the space-world and with it of the whole realm of externality, through these Gifts, which induct him into the knowledge of Form.

But they also develop in him the conception of Number, which is an abstraction from Form, or is indifferent to it. Thus he is getting his release from the sense-world, and begins to employ abstract or ideal things. The child learns counting in these Gifts, and becomes acquainted with the integer and the fraction. Arithmetical operations he performs with the blocks, combining and dividing numbers.

Likewise he obtains in these Gifts the very important idea of Measure, which is an application of Number to Form, whereby the latter is measured or reduced to the terms of mind. Measuring is a kind of smelting of the things

of the solid world, and pouring them into the ideal moulds of the spirit, by which they can ever afterwards be handled mentally. An old philosopher regarded all thinking as a measuring, and one definition of man has pronounced him to be supremely the Measure (*Homo Mensura*).

Such are the three quantitative principles which are unfolded from the present series of Gifts, and determine its name and general character — Form, Number, Measure — which correspond to the sciences of Geometry, Arithmetic, Mensuration (applied number). Hence it is evident that the best way to designate these Gifts is to call them quantitative, which means not simply geometrical, or numerical, or measuring, but all three and something more.

To the foregoing educative purposes of the Gifts is often added that of position or location, with the accompanying word which introduces the teaching of language. These two matters, indeed, belong here, and cannot well be left out. Then comes the external combination to produce new forms, which properly belongs to the Morphology of the Gifts, a subject which lies outside of the scope of the present book.

In the total movement of the Play-gifts (including all the Gifts and Occupations) the quantitative series belongs to the second stage of the Psychosis, as it deals primarily with the spatial,

the extended, the external element of nature. But chiefly, its first principle is origination, that is, separation, which is an unfolding of that which was before implicit, a making real of that which was before potential. This character we shall at once see in the Second Gift, the starting-point of the series, being that which distinguishes it from the First Gift, which is not directly originative, or separative, though it has six different objects. If these were derived in any way from one another, the First Gift would be internally orginative. Still the First Gift has slumbering within itself, baby that it is, all the potentialities which are hereafter to become realities; in this sense it has also a genetic power, though somnolescent.

The Second Gift may be well regarded as the most important of all the Play-gifts of Froebel, quantitative or qualitative; it, therefore, deserves the most thought and the fullest treatment. In it must be seen and felt the creative Idea at work, being a kind of demiurge or world-creator, possessing the divinely active spark of genesis, out of which moves forth the cosmos. Nor can we ever forget the marvelous conception of an old Greek philosopher, Empedocles, who actually deified the Sphere, calling it the God Sphairos, who is the beginning of all things, who is the perfect and concordant union of all the elements

in a kind of pre-established divine harmony, into which, however, discord, separation, war, is finally to enter. Such a divinity, we may almost imagine, to be presiding over Froebel's little cosmos of Play-gifts for the little child, whom they take literally by the hand and lead step by step into the grand cosmos of which he is a member, and in which he is to play a part.

I.

THE SECOND GIFT (ORIGINATIVE).

The Second Gift, then, we call the Originative Gift, since this term suggests its genetic character. In it we may note a kind of triple genesis or three stages of the creative process.

First, it starts with the Sphere which, as distinct from the Ball, has within itself its own creative movement, as Center, Periphery, Radius.

Secondly, this Sphere generates out of itself the Cube and Cylinder, the whole constituting the three forms of the Second Gift.

Thirdly, these three forms generate the other Gifts of the quantitative series (Third to Tenth inclusive).

Thus we behold the Second Gift in three phases of creative energy — the creation of the Sphere, the creation of the Gift, the creation of the series of Gifts (quantitative). An inner generative power we see at first, and then an outer, producing other Gifts. Yet it is always to be emphasized that these genetic principles of the Second Gift are inherently connected. If it had no inner creative energy, it would have no outer; its external production is but the manifestation of its internal activity. Thus it is like man, like the Ego, which has its own creative process (the Psychosis) whereby it becomes the productive source of manifold works in the world. The inner genesis not only precedes but necessitates the outer genesis.

In accordance with the educative movement already unfolded, the present series of Gifts should start with a Gift which contains implicitly the whole series, and from which all the other Gifts of the series should come forth by an inner evolution. Then the movement, when completed, should return to its origin, and psychically justify the same by such return.

So, we must observe that this Second Gift is also the potential Gift of its series; as the First Gift, already described, is the potential Gift of the total sweep of all the Gifts and Occupations, so the Second Gift, being likewise a starting-point and a germ of beginning and becoming, is

the potential Gift of the entire quantitative series.

The Second Gift is composed of three shapes — Sphere, Cube, and Cylinder, made of wood. They are perforated in such a manner that they can be made to whirl and to perform various kinds of movement. The triplicity is the foremost outer fact here, which fact, however, must be finally justified by an inner reason.

1. *The Ball* (*Sphere*). This has been already so fully treated in the preceding Gift, that very little need be added. It is essentially a repetition, yet in a new relation. It is now taken as the source of the present series of Gifts, which are inherently quantitative, not qualitative. Hence the Ball is at present to be considered, as far as possible, without its properties.

Still it has, and must have, properties, being a material object, and these properties are first to be looked at briefly, in contrast especially with the preceding Ball. The former is much softer than the latter; one is, however, smoother, less elastic than the other or may be; the First Gift is many-colored, the Second has only one color, which is or may be retained throughout the whole series. Then the hard Ball gives forth a much louder sound when pounded with on the table or thrown upon the floor, than the soft Ball — a fact strongly insisted on by some kindergardners. Still the child has been introduced to the sound-

world by the soft Ball, which also has its little cry when punched or assailed. Finally a verbal distinction is sought to be maintained between the two by calling the one a Ball and the other a Sphere or Globe, in correspondence with German usage in the present case.

Still, though these contrasts hold good, we are to see just by means of them that the property of the Ball is not now the main thing, is quite an indifferent thing, is, in fact, even that which we are henceforth to take away in thought. In other words the abstraction is to be made from the qualitative, and the stress is to be placed upon the quantitative, the extended, the spatial. For this is what is most immediately present to the senses of the child, and is the first element of the external world which he is called upon to master.

The Ball, having been brought over from the First Gift to the Second, is next to be seen as the point of departure for the latter. What is implicit within it, is to become explicit; what constitutes its inner essence is to be externalized and to be made visible. What are the implicit elements which the Ball must now make explicit and manifest to the senses?

In the Ball (or the Sphere) there are three inner elements: —

(1.) The central Point, from which the rotundity of the Sphere is determined.

(2.) The diametral Line, in the middle of which is the central Point fixed between two radii.

(3.) As a solid, the Sphere must have the three dimensions — length, breadth, height — represented by three Planes passing through the Sphere at right angles in the three different directions. — The intersecting Plane.

To these inner elements we may add in thought the external periphery, into which they are to be brought.

Thus we have the Point, Line, and Plane, as internal in the Sphere, not visible, not explicit. Moreover, the Point is fixed in the Line, the Line is fixed in the Plane, and the Plane is fixed in the solid. Now all these are to come out and to manifest themselves in a shape which we are soon to see.

Here we may introduce into this Gift a valuable help, the so-called skeleton Sphere made of paper. Its object is to render visible these invisible elements of the Sphere, and thus to bring home to the mind through the senses what is really supersensuous. Three round discs of paper are taken, representing three planes, and incisions are to be made into them that they can be brought to intersect with one another at right angles round the center. Thus we see the inner elements — the Plane, the Line, the Point — of the Sphere in their relation.

But the destiny of what is implicit is that it become explicit; the potential is to be made real; the internal invisible secret is to be revealed and brought to light; the undifferenced is to be differentiated. Such is the inner process of the spirit and the outer process of the world, which is not only a reflection but a creation of the spirit. From the Sphere we pass to the opposite.

2. *The Cube.* We remember that the Sphere has as its internal unseen determinant the point at the center. This Point is now separated from its position at the center, and is brought to the surface; such is the fundamental separation which next takes place, wherein we see the second stage of the Psychosis.

But what happens? That central Point, brought to the surface of the Sphere, must destroy its rotundity, since this is what is determined by that central Point with its radius. When the unseen center is brought into the seen periphery, then the periphery in its turn can be no longer seen, but becomes ideal, a possibility. Thus the seen and the unseen change places.

The Cube is the Ball (or Sphere) turned inside out. The Point, Line, Plane, implicit and invisible in the Sphere, are explicit and visible in the Cube with its eight corners, twelve edges, and six surfaces. The inner essence of the Sphere is externalized, realized, uttered (outered) in the

Cube. We may look at this transition in a little more detail, in order to bring out its importance, since the genetic movement of the quantitative Gifts has its starting-point just here.

(1.) The central Point comes first, which we have just noticed in its inner, hidden, undeveloped state, and have seen it thrown out into the periphery which it previously determined as outer.

What brings about this separation? It is a necessity of thought as well as of thing, it is the inherent process of the Ego as well as of the Universe. What lies in the Ball (or Sphere) must come out; it has to express itself, else it would not be Nature's; it is as natural for the Sphere to burst forth into the Cube as it is for the seed to grow. What is ideal is under an eternal strain to become real; the potential, always big with the actual, must at last give birth to its child.

(2.) The diametral Line will also be brought to the surface with the central Point, which brings with itself to visibility its invisible constituent. For the center of the Sphere is the center of two radii or of the diameter of the Sphere, also inner and unseen; this diameter is made external and visible along with the center, which cannot be without it. That is, the central Point cannot be separated from its diametral Line, which conditions it, and so both come to the

phery, when the inner is to be made outer.

Moreover, this diametral line is a *straight* line, the shortest way between its two ends; it is a *right* line, and all that it determines is rectilineal. This is the opposite of the curved surface hitherto visible. Now when this right line comes into this spherical surface and determines it, the sphericity must fall away, and become straightened; the surface is rectilineal throughout, that is, a plane surface bounded by right lines.

Still, one Point and one diametral Line, externalized in the periphery, cannot remain alone therein, without effect; they are genetic, and, in order to be at all, they must transform the entire periphery of the Sphere, which cannot exist half curved and half straight. The generative principle of the Sphere, namely, the Point with its Line, has come to the surface and generates the same anew, determining it and dividing it up into corners, edges, faces, with just as many of each as it is capable of. For the central Point with its radii determines the whole periphery, not a part of it; so the whole periphery must yield to the new determinant.

(3.) The three intersecting Planes of the Sphere, representing the three inherent dimensions of the solid, must also be externalized and brought out into the periphery. With these Planes passing into the surface, its rotundity must vanish and be divided up into a number of faces or sides of the Cube.

In like manner we saw rotundity disappear when the Point was made explicit, and also when the Line came forth into the surface. Still more distinctly, when this third element, the Plane, is brought into the periphery, does the spherical drop down to the flat surface.

The fact is, however, that all these elements, the Point, the Line, the Plane, belong together in the Sphere; the Plane passes through the diametral Line, and this diametral Line passes through the Point, which lies in its middle. All three elements must come out together and form the faces, edges, and corners of the Cube.

We shall next consider the number and the various relations of these elements when externalized in the Cube. In the first place, each dimension in the form of an inner Plane, passing through and intersecting with the other two dimensions in the form of Planes, divides within itself and moves in an opposite direction toward and into the surface, in which it produces the six (three times two) faces. In the second place, each diametral Line, formed by the intersection of two Planes in the middle of the Sphere, will be in each of those Planes, will divide within itself and move toward and into the surface, where will be formed, as there are three such intersecting diametral Lines, the twelve edges of the Cube (two times two times three). In the third place, these same dimen-

sions in the form of intersecting Planes of the Sphere form eight inner corners round the central Point, there being two bi-sections (halving and quartering) of each Plane (two times two times two). These inner corners externalized become the corners of the Cube.

Let us illustrate. Take some round object (apple, orange, potato) which is easily divided; cut it in the three directions indicated, each cut may be conceived as a Plane passing through the object at right angles to the other two cuts or Planes in the center. You will notice at once the eight pieces with their corners around the central Point; these separated and brought to the surface opposite are the eight separate corners of the Cube. Secondly, observe the three diametral Lines formed by the cross-cuts of the Planes through the center; further note that each such Line is in two of the Planes; finally separate each of these Lines as Line in each Plane and move it outward to the surface; by such act of separation you generate the twelve edges. Thirdly, take the three Planes intersecting inwardly, divide them as Planes and move them in each direction outward, and you have the six faces of the Cube. In this way we see the Point, Line, Plane in separation, which, however, must be united and in position that they all form the Cube.

Each of these pieces with its corner can be

transformed by the same general process into a small Cube, making eight in all, which brings to light the Third Gift. In each piece are corner, edge, and face, as yet not developed into their perfect fulfillment in form; still, they are all generative in thought, and will unfold into their complete reality in the Cube.

This movement of separation in the three Planes is essentially the same, though in different directions. We may discriminate these directions in the various Planes by the use of terms: *up and down* for the separation in the horizontal Plane, *right and left* for the same in the front perpendicular Plane, *to and fro* for the same in the cross-perpendicular Plane. These terms may also be used to distinguish the separative movements of the Line and Point, as they go out to the surface in opposite directions.

Still another illustration may be employed in this connection — the skeleton Sphere already described, or, when its corners are attached, the skeleton Cube. This figure is the counterpart of the solid, since it brings out the ideal elements — Plane, Line, Point — and makes them material. The skeleton, usually hidden in the body, is here made visible, external, hence the name. We look through the solid, as it were, and behold its inner workings. We see the eight corners clustered round their central Point; we see the three diametral Lines in their six Planes moving out-

ward and forming the twelve edges; finally we see the three intersecting Planes dividing within and going forth into their external position as the six faces of the Cube. To be sure this genetic vision is ideal, but it always lies back of and creates the real.

We may remark in passing, that it does not help along very much to call this inner externalizing principle *a force*, as the scientists and certain philosophers do, and as Froebel sometimes (though not always) does. For we have to ask what is this force? We find that it is usually conceived as some outside energy, not to be thought of any further, or openly declared to be unknowable. So the difficulty is simply thrown back one step and dropped. Force itself must be put under thought, as well as the process of the Sphere which it seeks to explain. Force, in so far as it means anything, is ultimately a phase of the Ego, especially of the Will, without which force could not be nor be conceived to be. It is the Ego which has within itself this inner power of separation, externalization, manifestation, to which the material universe corresponds and of which it is primarily the creation. And so, in order to understand the present movement of the Sphere, we have to identify it with the movement of the Ego, to make it a part of ourselves; thus we psychologize it and come to know it truly, first integrating it with ourselves and then sep-

arating and distinguishing it, as it is in itself. We may, therefore, refrain from injecting force as an explanation of the present process, as that is an explanation which explains nothing, and which is itself in sore need of explanation.

Accordingly we always come back to the Ego in its thinking, creative activity, as the primal source of things. We have illustrated the subject previously both by a solid and by a skeleton figure; still we have to return to the thought of this transition from Sphere to Cube, in order to be fully satisfied. For thought is the creative principle of the universe, and is what really creates the Cube from the Sphere. This thought is what we are to take up into ourselves, and we may re-iterate briefly its main steps:—

(*a.*) The periphery of the Sphere is determined by the central Point with its radius.

(*b.*) This Point is determined as central by being in the middle of two radii which constitute the diametral Line.

(*c.*) This Point with its diametral Line is brought to the surface, whose rotundity falls away.

(*d.*) The whole rotundity must vanish, as the whole periphery was determined by this Point and Line.

(*e.*) The three dimensions as Planes are brought to the surface, in which they become sides.

(*f.*) So we find the Point, Line, and Plane of the Sphere separated and externalized in the Cube in eight corners, twelve edges, and six sides.

Another noticeable fact is the duality of these three elements in the Cube. That is, the Point, Line, and Plane, are not lost even in the Cube, they are both inner and outer; the Cube has still the central Point, the diametral Line, the intersecting Planes. But these are at present mere shadows, though they once determined the Sphere; they are now cast out of power, reduced to a kind of ghosts which love to haunt the scene of their former glory. So the Cube has still the spectral counterparts of the actual Plane, Line, Point, holding both elements together in a sort of union which is like that of soul and body. Still even these ghostly forms will again see the light of day in the Third Gift, which makes a new division of the Cube through Plane, Line, and Point, transforming these hidden elements once more into visible corners, edges, sides of smaller Cubes. So there is a re-incarnation; but this second body in each case projects a second shadow of itself, and the duality above mentioned clings to the reproduced forms. All this must be regarded as characteristic of the separation which lies in the origin and nature of the Cube.

Accordingly, this transition from the Point through the Sphere to the Cube must ultimately

be grasped as thought, not as image. For the image is the copy of the visible, while this transition is just the movement from the invisible to the visible. At any rate the Point not having length, breadth, or thickness, cannot be outwardly seen, but must be inwardly conceived, concerning which fact something will be said hereafter when we come to the explicit Point at the end of the Gifts. The distinction between thought and image, or between the creative and representative activities, makes itself felt in the mentioned transition, but we need not develop it now.

An intermediate form between the Cube and Ball was introduced by Froebel, and has emphatically asserted its place to the present time. This form we are to consider next.

3. *The Cylinder.* If the edge of the Cube be made to revolve, that is, to return into itself, a round surface will be generated, but as linear, and every edge of the Cube will disappear. The two corners will describe two circular edges, which will bound the two flat sides and the round surface just mentioned. The result will be the Cylinder — a linear Sphere or a spherical Line. The explicit diametral Line (not the implicit) generates its round solid which will be the Cylinder, not the Sphere. It is the edge of the Cube seeking, as it were, to return to the Sphere, its origin, rotating back toward the same and carry-

ing the Cube along. Yet this Line, remaining explicit, cannot reach the Sphere, which requires that it be implicit.

The Cylinder, therefore, will roll easily in one direction, that is, on a line, wherein it betrays its origin. The Sphere, however, rolls in all directions, being the possibility of all lines. When it is projected into a line, and becomes a Cylinder, it loses this trait and rolls one way only. The other ways or directions are cut off by the two flat surfaces of the Cylinder which it has inherited from the Cube. Hence it stands firm on its two sides like a Cube, and rolls on its other side like a Ball. Thus it unites traits from both ancestors. Still the Cylinder must be seen coming from the Cube since it has Line and Surfaces explicit, yet moving toward and coalescing with the Sphere, returning out of separation to its mother, or perchance, to its grandmother.

The Cylinder, therefore, we should place in due order as the third shape of the Second Gift, coming through the Cube from the Sphere originally, to which it is returning.

Thus we bring before ourselves the process of this Gift moving through its three shapes according to the inner order of the Ego, though the outer order (that of the senses) is possible and may sometimes be preferable with the child. (See a further discussion of this matter in the Observations on the present Gift.)

On the side of its spherical descent, we may regard the Cylinder as the Sphere prolonged into its diametral Line, giving to the same the length of the diameter, yet without making the central Point explicit as a corner. The Cylinder, as already said, has two round edges, showing the two limits of the diametral Line, and marking the Cylinder sharply by this Line.

In what order shall we place the three shapes of this Gift? The Cylinder we have already grasped as the return of the Cube to the Sphere in the total psychical process of the Second Gift. The diametral Line, explicit in the Cube as edge, is conceived as going back to its source, the Sphere, and uniting with that in the creation of a new shape, which is the Cylinder. For this Line now transmutes the Sphere into itself as a straight line, so that the whole Sphere elongates itself or straightens itself out into a diametral Line, which newly generated body is round as the Sphere, yet long and straight as the diameter. So the Cylinder may be regarded as the explicit diametral Line of the Cube returning to its source, the Sphere, absorbing the same, and thus becoming one with it. Note that the rotundity falls away at the ends of the Line, being determined thereto by the diameter.

Thus the Second Gift contains within itself the psychical movement of the Ego, which fact is its final justification. In the process of the

Ball, Cube, and Cylinder the child's mind is unfolding out of its implicit, undeveloped condition, is being borne forth into consciousness out of the infantile sleep of the spirit. From potentiality the child is moving into reality through this Gift, since it is identifying itself with the real world. Such is the basic principle of what is often called the symbolism of the Gifts: the outer process of material shapes corresponds to the inner process of the child's Ego, which he unfolds through an ordered play with these shapes. Play it must be, spontaneous, yet not chaotic or capricious play, but ordered. The child must learn to combine liberty and law in his play from the beginning.

It is manifest, however, that other shapes beside the Cylinder are generated in this return of the Cube to the Sphere. Though they have hardly yet been adopted into the kindergarten family, they are often heard knocking at the door for admission. Froebel himself seems not to have fully made up his mind what to do with them. The two chief ones we may look at for the sake of comparison and of completeness.

4. *Pyramid and Cone.* The most direct product of the Cube, the first form that it unfolds in its return to its source, is the Pyramid with the square base. We must conceive that in the Pyramid, the Cube, though starting to divide within, still preserves the half of itself, but has to let the other half go and allow it to be pro-

jected into a Point, which is the product and extremity of the inner diametral Line. In such a projection the Pyramid succeeds in keeping its basic lower face whole, but it loses all of its upper face, and a considerable portion of each of the four side faces, which come together in the form of triangles at the apex, whereby the whole figure is made to point significantly upward.

The Pyramid shows a kind of dumb, stony struggle within itself; it is the flat-sided, indifferent Cube broken up and stirred within to aspiration which longs to reach out beyond itself, to the unseen, to the very Heavens above, yet keeping its bodily form as far as possible, and still standing squarely on the Earth, in spite of that prophetic outreach upward. The people of the Nile valley at one period of their history must have had this longing for the invisible with such a mighty intensity that they built it into the Pyramids of Egypt, the most collossal monuments of the ancient world.

The Cone is a further step in the return to the Sphere, though it has, like the Pyramid, the Point explicit in an apex. But it has lost the four basic Points or corners, and the four straight lines as edges are transformed into one circular edge, and therewith the four triangular surfaces have vanished into one round surface. It is manifest that rotundity is getting the upper hand r the cubical elements. The Cone is the

Pyramid made round; or it is the Sphere pulling itself out to a Point. There is but one Point explicit in the Cone, and that is determined by the inner diametral Line, as in the Pyramid. Accordingly, we may derive the Cone from either direction — from the Cube or from the Sphere. We may conceive of the Cone as the central Point of the Sphere projected into externality by the diametral Line and carrying the Sphere along to the apex, so that rotundity gets pointed in the Cone.

The Cylinder we have already considered, but in its present aspect we may regard it as the third step in the return from the Cube to the Sphere. In it the diametral Line has become explicit without any Point, so that the Cylinder may be conceived as a Sphere projected into the diametral Line, having length but no corner or apex or straight edge. Make this Line purely internal or diametral, and the return to the Sphere is completed. The Cylinder is a Sphere which is a Line, or a Line which is a Sphere; or, as already said, a spherical Line or a linear Sphere.

We have now unfolded the Second Gift in the three stages of its psychical process — the immediate or potential (the Sphere), the separative or explicit (the Cube), and the returning and uniting (Cylinder). But we have found that this last or returning stage manifests within itself

three steps, which are shown realized in the Pyramid, Cone, Cylinder.

Putting all these shapes together, we have the following succession briefly stated: —

1. The Ball — Point, Line, and Plane implicit.
2. The Cube — Point, Line, and Plane explicit.
3. The Pyramid — the Cube projecting itself to a Point.
4. The Cone — the Sphere projecting itself to a Point.
5. The Cylinder — the Sphere projecting itself into a Line.

The other distinctions between these shapes, as well as their movement, have been sufficiently indicated already in the preceding exposition.

Other Accessories. Doubtless the Sphere, Cube, and Cylinder will remain the heart of the Second Gift, but for the purpose of explaining and unfolding it more fully, certain additions will be made from time to time. Beside the Pyramid and Cone already considered, which may be introduced to the older children, we mention other accessories, very helpful indeed, if not an organic part of the Gift.

First of all we would place the skeleton Sphere and Cube before described. Both of these forms are most important aids to the Second Gift, and are also useful in the First and Third. By means of these forms the child sees embodied division

in the paper planes, or embodied production, since here the production is by division. Also it suggests one kind of physical generation, that by fissiparism, seen in many protozoans. Then the whole shape suggests the cell or the cluster of cells as the primary type of life which is also a physical reproduction. The histologist tells us that the unit of human organism is the cell, which likewise reproduces itself by division, separating itself into two, four, and even eight parts, each of which becomes a cell. If this be so, the skeleton Cube with its eight cells is a marvelous image of the self-reproduction which is always taking place in the living human body. For the Cube is seen dividing itself by means of the planes, which are walls of the cells, and these again when divided are small Cubes or small cells, if you please. Bee-cells, though hexagonal and not usually clustered about a center, have a similar suggestion. The round hornet's nest with its multitudinous cells can also be compared. At any rate these skeleton figures as a kind of embodied origination correspond deeply with the originative character of the Second Gift and are very suggestive both to the kindergardner and the child.

In the second place we should not fail to consider the division by concentric layers or shells. The Sphere ought to be seen in three such layers,

moving inward to the Point or outward from the Point. Likewise the Cube and Cylinder are to be similarly divided. As illustrating the Point projecting itself in all directions into the Periphery, the concentric Spheres are very significant and touch the child with a peculiar power, showing the activity of his own central Ego to itself. For the sake of derivation, particularly in the case of the curvilinear Gifts, we must have the concentric Cylinder whose sections give the three different arches, as well as the rings of Abstract Magnitude, which are likewise halved and quartered, as well as of different sizes. So too the round tablets. And we must add that Froebel, among his mature thoughts on the Kindergarden, unfolds this idea of concentrism in the forms of the Second Gift — whereof something will be said later.

Our subject has now brought us to a new kind of division, the outer or cross division of the inner or concentric division, separating the round forms of the latter into halves and quarters.

Thus in this Second Gift we see three kinds of separation or origination. First is the outer one, by external division, by fission or fissiparism; second in the inner one, that of concentrism; third is a unity of the two, in which the concentric forms are divided by straight lines.

Thus the Second Gift vindicates again its title

of originative; also it asserts anew its place as the second or separative stage of the Psychosis in the total movement of these Play-gifts of Froebel. From it are derived primarily the quantitative Gifts whose unfolding is to follow in due order hereafter.

Once more it must be affirmed that the Second Gift is, all in all, the most important of the whole series. Particularly should the kindergardner herself be imbued with its spirit; she must assimilate its genetic nature, making the same her own, both through play and thought. One may well say that the Second Gift is a spiritual Gift, it has an inner life of its own, which must be made outer, not so much in its own limited range as in the entire sweep of the Gifts and Occupations, whose creative principle it is in a supreme sense. Veritably it is the soul, the rest of them make up the body, which has little meaning without the creative spark.

By way of confirming, expanding, and illustrating what has been said upon this Gift, we shall append some observations, into which the student will dip with the hope possibly of catching a few stray stimulating thoughts.

OBSERVATIONS ON THE SECOND GIFT.

1. It will be noticed by the student that the treatment of the preceding geometric forms is different from that of the ordinary geometry. The attempt here is to generate them, one out of the other, and all of them out of a common source. This method is based upon the conviction, that they have in themselves a generative principle which produces them, and it is just this principle that thought must at last seize and express, inasmuch as thought is the creative energy in all things.

We must, therefore, reach into the creative movement, which is the soul of even the geometric form, the latter being a creation of an Ego, and bearing the imprint thereof, along with the whole universe. It is that genetic act which we must identify and know, producing the divine process of creation over again in our thought. "God geometrizes," said the old philosopher, and we must geometrize after Him in His way in order to know Him, or even to know geometry.

2. The manner of presenting the Second Gift has been discussed a good deal by kindergardners. We have above unfolded the succession as Ball,

Cube, and Cylinder; but ought it not to be Ball, Cylinder, and Cube, inasmuch as the Cylinder stands next to the Ball in shape? The question calls up the whole subject of Methods, or the order of presentation, upon which we remark the following:—

(*a.*) There is, first of all, the sense-order, in which the appearance of the sensuous impression controls the method. We proceed in an experimental or even chronological way. Given the object to start with, we take as next in order what is most similar in form or nearest in time or place; then we pass to the object which has a little greater difference from the first, and so on till we reach the completely opposite object. Adopting such an order in the preceding exposition, we would have the series Ball, Cylinder, Cone, Pyramid, Cube. First is the least possible difference and the greatest possible similarity, then a little more of the one and a little less of the other; so we go on increasing the amount of difference till we land in the realm of absolute opposition.

Such is the one order, the sense-order, the nearest to the antecedent in form, time, place, hence the easiest for the senses, or at least generally so, for there would seem to be exceptions to the rule. Now we shall glance at the other kind of order.

(*b.*) This is the thought-order, which, given

the object to start with, leaps at once to its opposite. For when you take up difference into thought, it is universal; when you think difference, you think all difference, not some little fragment of it scattered about somewhere. But the senses can receive only some small bit of difference at a time; in other words the senses are particular, while thought is universal. We may call this the logical order, or even the psychological order, though the latter is not a good expression, as psychology includes or ought to include both ways, dealing with the senses as well as with thought.

The logical order, therefore, introducing difference into the Ball, demands that the object next in succession be completely different, have otherness in it at every point. Hence this order proceeds from the Ball to the Cube, and then gives the return, revealing the Psychosis in the Second Gift.

(*c.*) Which order is the kindergardner to use with the child? She is not called upon to exclude absolutely either, she may use both. There is no doubt that the child is a sensuous being at the start, yet has in him the potentiality of a spiritual being; he is to rise from the first to the second. Moreover, a certain class of minds remain sensuous, experimental, inductive to the last, and nothing else; yet even the most

al man has or ought to have a strain of this

element in him for his own private use in an emergency.

Most children have doubtless the need of a sense-order at the beginning, though some children seem to take at once to the thought-order. Let the kindergardner know both ways, and study the needs of her flock; let her be willing to employ one or the other, without prejudice or foregone conclusion. Yet so much may be vigorously affirmed: the movement is toward the thought-order as the highest, though the sense-order be used as an educative means. In the preceding exposition we have unfolded the thought-order for the kindergardner, which she must understand that she may know the goal of her labors.

We may compare the two ways by an illustration. The sun still rises for the child as for the primitive man, he is controlled by what appears to his senses immediately in that case, he cannot understand any other way. That is, the child is geocentric in his view of the external world, the earth where he stands is for him the center of the universe. Yet in due time he must become heliocentric, he must make the sun the center, round which the earth moves. Thus he must get beyond the sensuous appearance, and reconstruct it according to his own inner vision, which contradicts so glaringly the outer; from the sense-order of the solar system he must rise

to the thought-order. But at the start he has to dwell in the first.

Indeed it is a grand act of self-estrangement to take the sun as the center instead of the earth. It hurls the individual out of his immediate sense-world of appearance and forces him to create it from the standpoint of thought. Incalculable has been the value of the training of the Copernican theory. It compels a person to change his view of the universe internally as well as externally, to pass from an outer geocentric vision to an inner heliocentric vision of the grand cosmical order.

It may be said that up to the time of Copernicus and his followers, the race had been geocentric, though some of its great spirits had had a presentiment of the truth. Even the church was geocentric, it fought for and persecuted for that principle against heliocentrism. The lower orders of mankind are still geocentric, to their minds the sun "do move."

The child has to follow the movement of its race in this as in so many other respects. The kindergardner should understand the little soul both in its present reality and in its future possibility; she should give due validity to both procedures, that of the senses and that of thought. If she drops back into the purely sensuous method, she may endanger the child's whole spiritual destiny. Then she can err on the

other side and pass out of the horizon of the child, who thus becomes listless and hopeless.

We may divide minds into geocentric and heliocentric. In spite of all culture, some keep to the last their terrestrial center, round which all things revolve, even the celestial luminary.

3. The Ball is found everywhere in Nature, while the Cube is rare in Nature. But the moment man begins to transform Nature for his own use, the cubical or at least the cuboidal form begins to show itself. Especially when he starts to building his place of abode or defense, the round, independent shape has to disappear, while the squared, close-fitting block of stone is laid as the foundation of his structure, and becomes the constituent of his inclosing wall.

Accordingly, the transition from the Ball to the Cube is almost the transition from the nature-made to the man-made, it suggests the rise from the physical to the spiritual. The human being has to make-over the crude, material object, and put upon it his impress, and employ it for his purpose. In going from the Ball to the Cube, the child is starting on his journey from senses to spirit, from what is given by the external world he is passing to the creative principle of mind and its forms.

The objection, therefore, which is often heard from teachers unduly devoted to Natural Science, that the Cube is not common in Nature, is really

an argument for its educational value when rightly understood. The challenging cry has been heard with a tone of triumph: "Run out into the woods and pick up a Cube if you can," as if that settled the matter. "Only in the house, in the city, in the abodes of civilized life do you find the cubical form in abundance, only among the artificial degenerate works of man, not among the pure and holy works of God." Of course this is again the shout of Rousseau, "Back to Nature," a principle long since utilized and transcended, though its present advocates proclaim themselves the most advanced educational reformers.

But we strongly affirm that if the child is turned loose in Nature and allowed to pick up any object and play with that, he is not getting much education — some information doubtless but very little education. If he passes from the Ball to a stick, or leaf, or lump of mud, he is simply going from one physical object to another, as caprice strikes him; it is the movement from like to like, and that too, external. But when the child passes from the Ball to the Cube, the movement is from the nature-form toward a thought-form, and the process is truly educative; he is going out of a mere physical life determined by what he sees into the life of civilization whose grand function is to transform the natural world.

To be sure, this step is small, is but the begin-

ning, and has to be so, the child being what he is, namely the beginner. Still the Cube is the starting-point for these geometric Gifts, in fact their originative form, their germ; as they unfold, the child unfolds with them, they are the outer vehicle for his inner development. In this sense we may call these Gifts symbolic, they are the external image of his spirit in its present stage, they move as it moves; they pick it up, unite with it, unfold it, and at last reflect it back into itself, so that it becomes self-conscious, as is its destiny.

This symbolism we may carry out a little further in our thought. The child is primarily a Ball, implicit, potential, a rounded bud, seed, germ. But the child is to be a Cube, with all its points and directions made explicit, brought out, educated; every innate power is to be unfolded in the right way and in the way of right. Finally from this universal training and this training in the universal, he is to pass to his special bent, to his vocation; thus he is like the Cylinder, Cone, or Pyramid, having one point explicit or one line; still he is to keep and forward his universal culture along with his particular calling. So he becomes in life a kind of union between the Cube and the Ball.

4. The Second Gift has its difficulties for the kindergardners, whose resources are often taxed to make it interesting to the children. It is cer-

tainly not rich in forms, having only three, and one of these quite intractable for building or combination. Leaving out the Ball-plays, which chiefly belong to the First Gift, we have to acknowledge the dearth of the materials for direct play. The difficulty is, therefore, inherent in the Gift.

Still the skillful kindergardner can employ various devices to help herself and her children into the golden field of interest. Some of these we shall jot down.

(*a.*) She can introduce the story and set a-going the child's imagination through her own. The Cube can be a little person with a history; it can be transformed into a variety of objects to which it bears some resemblance. Herein an excess is possible; the child can be trained to a habit of wild fantastic dreaming or brooding, which may come to distort or neglect the fact.

(*b.*) Song can be resorted to, for it has a power in its own right, and will help out in a good way. Still singing is not to be overdone, it cannot take the place of the total educative process.

(*c.*) There are Cube games, which may give you much assistance in a right manner. The most common of these is the hiding of the faces of the Cube, by means of a handkerchief or piece of paper, and then showing them successively in various combinations. Thus counting, guessing,

calculation, etc., are introduced in a playful way.

(*d.*) But perhaps the most successful of these devices for assisting the Second Gift is what is usually called the whirling game. The three forms are provided with staples in which a string may be inserted for the purpose of making the object rotate rapidly. The Cube when whirled in this manner reverts to round shapes, to a Cylinder, a double Cone, and a wheel. The Cylinder revolved with a certain velocity has the appearance of a Ball, in fact a double Ball. The manuals describe a considerable variety of these shapes of motion, which show a tendency to the round through rotation. That is, the round movement of a derived shape sends it back to or toward its original shape. But these whirling shapes are shadows, sometimes two or three shadows within one another, as if showing an entire line of ghostly ancestors of the actual body. One may consider the whole process a kind of idealizing the real, or making the real form show its ideal relations.

5. The movement of the Sphere into the Cube and other rectilineal shapes, suggests crystallization, in which Nature shoots into straight lines. Froebel, as is well known, was a crystallographer in his earlier career; we see the effect of his studies on this subject in his *Education of Man*, as well as in these quantitative Gifts. He has

elaborated the rectilineal element in four Gifts with a loving fullness, while the curvilineal element is not represented at all in the Gifts of Concrete Magnitude, as they were left by him.

Moreover Froebel was an architect, or at least a student of architecture, and this influence may be supposed to have made itself felt in his Building Gifts. Man constructs primarily by means of rectilineal forms, making them of brick, wood, stone. He cuts the native rock into rectangular shapes mostly; the early masonry, like the Cyclopean, shows it everywhere. When he builds of earth, sun-baked or fire-baked, it is the brick. The temple Parthenon has blocks square and oblong in its inclosed cella, though some modern walls have broken up this regular line and have inserted stones of irregular outline — another move for freedom. In the backwoods the frontiersman gets rid of the round form of the log which is built into his humble cabin, he hews it to a right line and thus takes off its savage look. He, too, in the heart of the primeval forest, makes a start out of rude nature toward civilization.

6. Objection has been made in some quarters against the Cylinder of the Second Gift on the ground that it is not beautiful, that it ought to be at least twice as long in order to show the form and proportion that are pleasing to the cultivated eye.

The objection cannot hold for a number of reasons. First of all, the Second Gift is genetic and the Cylinder is derived from and measured by the diametral Line of the Sphere. To lengthen the Cylinder would be to break this genetic thread, which is to connect finally all nature, and which is the truly educative principle of the Gifts. To sacrifice this educative principle to supposed æsthetic considerations cannot be thought of for a moment. It would be the surrender of the soul to the body.

But, in the second place, the deeper view of what is beautiful would not disturb the Cylinder in its present place. We should feel the inner harmony between it and the Ball, the harmony of genesis itself; we should hear in spirit its truly musical movement out of and into other forms of this Gift, a kind of symphony of transformation. If we increase the length of the Cylinder, we introduce a horrible discord into this song of the Sphere, Cube, and Cylinder attuned to the primordial key-note of all creation. For the sake of mere outer beauty at the very best, we destroy that inner beauty which springs from the deeper correspondences between nature and the soul of man. We hold, therefore, that a true conception of the beautiful will justify the Cylinder in its present shape and relation.

The Gifts of Froebel, however, will not neglect the forms of beauty even in their external mani-

festion. They will have their place in the order, which belongs not here, but to that part of the subject which we have called the Morphology of the Gifts.

It may be added in this connection that some buildings, essentially cylindrical in shape, with a height not greater or even less than the diameter, are counted among the most famous structures of the world. The Roman Colosseum, somewhat oval, has an altitude less than one-third of either diameter. Yet it would hardly be considered inartistic for this reason. The small round Temple of Vesta at Tivoli is distinguished for its beauty; nobody probably ever thought that it was out of proportion, yet its height differs little from its diameter. The Pantheon at Rome is a low cylinder surmounted by a dome. Surely in architecture a cylindrical shape of a height equal to its diameter cannot be put under the ban of ugliness.

7. It is a significant fact that various nations have applied these geometric forms — Cylinder, Cone, Pyramid — in their simplicity to the erection of tombs, the houses of the dead, in which lies more or less darkly a symbol or intimation of the Beyond, or of the Eternal.

The cylindrical tomb finds its most famous examples at Rome, some of which were built in her most civilized epoch. Outside the walls can still be seen the large drum-like monument of Cecilia

Metella, eighty feet through. Inside the walls not far from the Vatican stands the lofty mausoleum of Hadrian, now known as the Castle of St. Angelo, with a massive Cylinder over two hundred feet in diameter, above which rose a roof somewhat like a tent or cone. The substructure was square, so that it had its resemblence to Froebel's Cube, Cylinder, and Ball.

Conical tombs are ruder and belong to an earlier epoch, often being hardly more than simple tumuli of earth. Still they are frequently built of stone, wholly and in part, like the so-called treasuries (now considered to be tombs) in Greece, of which the best known are those at Mycenæ and Orchomenus. Conical tombs are found in great numbers throughout Asia Minor, and with them legend has often coupled the name of some Trojan hero, or of some personage famed in story; for instance the tomb of Tantalus, cone-shaped, is still pointed out on the Lydian coast not far from Smyrna. Likewise Etruscan tombs are often conical.

But the greatest tomb which man has built is the pyramidal, and is seen in the Egyptian Pyramids. Why should the living construct such a colossal abode for their lifeless shapes? The flat-footed Cube, base of the Pyramid, stands firm on the earth, yet mightily projects itself upward to a point, aspiring for the Unseen, striving from below to the Beyond in a Titanic struggle.

All these forms — Cylinder, Cone, Pyramid — the reader will note, are those produced by the Cube returning to the Sphere with its invisible Point. They all hint, therefore, a going back to their source, to their primal origin; they suggest a movement from the terrestrial to the celestial, or from the material to the spiritual. Also a return it is; may we not call such a monument an intimation of the return of the soul to its Creator? Man cannot help constructing a symbol of himself even in his tomb, which says by its very shape: The departed have indeed left us, but have returned whence they came.

Froebel's monument at Schweina is made of the Cube below, the Cylinder between, and the Sphere at the top; in it we may read a hint of his return upwards, after the separation of his visible portion from the invisible.

8. It may have been noticed by the student that the above development of the Second Gift takes for granted that there are three dimensions of the solid and only three. It is a very pertinent question: Why just three, no more and no less? The answer belongs to Philosophy, or, as we think, to Psychology, but cannot be fully given here. Still the earnest inquirer will reflect that the solid, both as Space and Matter, shows this agreement with the triple division of the Psychosis. It would seem that the material world is conditioned by triplicity as strongly as the Ego itself,

or even more strongly, being tied up in the adamantine chain of three dimensions and no fourth.

Space and Matter are the creation of an Ego and show its movement, even if completely externalized, so that each dimension, though absolutely united with and determined by the other two, are yet wholly outside of the other two. The measuring principle (dimension) of the solid universe is threefold, bearing the outer impress of the Ego which made it, the Divine. Therefore, the Ego, the human, can account for it, can know it, using itself as measurer with its own threefold process, which shows itself in the outer material world as the three dimensions.

9. The method employed in the preceding exposition of the Second Gift is not the "connection of the opposites," not "the mediation of contrasts." On the contrary, the process of the Ego is introduced to explain the unfolding of the child's mind through this Gift. The movement of the Ball, Cube, Cylinder, must be seen as an outer manifestation of the child's own soul (or Ego) in its development. Thus the Second Gift is profoundly educative, having in it the educative process in outward reality, by means of which the infantile mind is made to put forth a fresh flower, or is led out (educated) into a new stage of itself.

This process, therefore, does not start with the

conception of the Ball and Cube as two opposites, which are simply united in the Cylinder. On the contrary it starts with the Ball, out of which is evolved the Cube, which unfolds into the other forms (Pyramid, Cone, and Cylinder). This is not the "law of opposites;" in strictness it is not a law at all, which seems some iron necessity imposed upon the mind from the outside by an unknown power. It is the free movement of the Ego itself in its own self-active nature, which herein is its own law and its own law-maker.

We hold that Froebel's practice conforms to the process above given, though his explanation usually does not. Still he sometimes drops the law of opposites and seizes the pure psychical movement. On the whole, however, the student will have to confess that his practical work is far greater and deeper than his explanation of it.

10. In the preceding exposition it has been declared that the central Point of the Sphere becomes explicit in the corner of the Cube. This is true, still we say here in advance that the implicit central Point just mentioned will become completely explicit when it is free of the Cube and is taken by itself, as it is in Abstract Magnitude. The last of the Gifts (quantitative) is the Point, separate from all matter and extension, fully explicit and free.

Thus we observe that the sweep of the Gifts lies between the two Points, the beginning and

the end, the completely implicit and the completely explicit Points, the latter being represented by the seed or pebble. These two Points, the beginning and end of the Gifts, are connected by an inner genesis, which will be better understood at its conclusion, when this thought is to be specially emphasized.

11. The Second Gift, with Cube below, Cylinder in the middle, and Ball on top, has a surprising resemblance to the human form, a rough-hewn outline of man himself, not yet unfolded into his full noble shape, but distinctly going thitherward. Not yet evolved, but evolving; a somewhat awkward, unfree figure of humanity developing into the image of its very self; it is a rude statue of the incipient Ego taking on its visible counterpart, the body. It is a kind of hieroglyphic of the child-soul who has to read it, and thereby come to a knowledge of himself.

Make him stand erect, that primeval Man, with base firmly planted on the earth, with cylindrical body upright, and capped with the sphere, that round head of his, which is the seat of his thought, of his creative power, generating anew all things. Certainly a rude figure of a human being, yet statuesque, recalling the child statuary making himself out of mud and thus looking at himself, or the primitive sculptor of savage life with his sun-baked divinities of clay; in fact, I might be able to point out the granite

cousin of this Froebelian shape among the Egyptian Gods. Hardly, however, is he to be found in the Greek Pantheon, or even in the Greek Pandemonium.

Still this Second Gift bears in itself the creative Idea embodied, and is a world-maker; a sort of demiurge we have already called it, and the rude statue of it already alluded to represents a divinely creative principle which is yet to unfold into fullness, and to realize itself in a veritable cosmos of forms. It is truly the Man-Gift, not only showing Man in rude sculpturesque outline embodied to vision, but also revealing Man as the spiritually generative energy of and within himself, and likewise as the genetic source of the transformation of the whole material universe.

Look again at its triune shape; it is an embodied Ego, a materialized Psychosis, of a rather primitive cast, doubtless, yet deeply genuine, for the child and of the child. Undeveloped, one cannot help reiterating, not yet having sloughed off its prehistoric cuticle altogether, though mightily engaged in the process thereof; Man it is assuredly, with head and trunk plainly visible, but he cannot walk, his feet are not yet evolved, nor are his hands. Man, yes, but Man in his tadpole stage — just look at that statue again — not yet able to march on two legs, though lustily wriggling toward the step of freedom.

So we may seek to make a living fact out of

this profoundly suggestive Gift. Its originative character we can imagine in many ways, and cast into many sorts of illustrations, still its creative soul is a thought, not an image, and in order to be adequately understood, must be thought anew, that is created anew in and by the spirit of the student.

Historical. Froebel's conception of the Second Gift was a growth and a long one. But in his last written production of any length, the letter to Emma Bothman (reprinted by *Lange*, II. 501), he shows that he has in mind this Gift in its present form — Ball, Cube, and Cylinder. The mentioned letter is dated May 25th, 1852; Froebel died June 21st, 1852, less than one month afterwards (according to most authorities, but some say the date of Froebel's death was July 21st, 1852).

If we go back a dozen years or more to Froebel's long essay on "The Sphere and Cube as second play-gift of the child," we find no Cylinder, but the doll. This essay or series of essays, since there are several parts (*Lange*, II. 53; translation by *Miss Jarvis*, I. 70), was taken from the *Sonntagsblatt*, which was published by Froebel in the years 1838 and 1840 (see Seidel's edition of Froebel's Works, Vol. II, *Vorwort*). Thus the intermediate form was developed later; somewhere about 1844 the Cylinder as the third or mediating body had taken its

place in the Second Gift (Hanschmann, *Leben von Froebel*, S. 327).

But also the Cone appears prominently in one of his longer expositions (see *Lange*, II. 559. — trans. by *Miss Jarvis*, II., p. 306. On the Cone see p. 315 in the latter). Here he says directly that the Second Gift consists of four bodies, and gives his reasons why there should be so many. Still in the letter just cited he does not mention the Cone, but the Cylinder is the sole intermediate form. So he must have rejected the Cone in the intervening years, and have retained simply the Cylinder.

We may now seek to find the epoch when Froebel occupied himself specially with the Sphere, which is the beginning and source of his Gifts. In the year 1821 he wrote out and published his "Aphorisms" among which are found the following reflections on the Sphere. We translate from Lange (I. 263): —

"The spherical is the representation of multiplicity (diversity) in unity, and of unity in multiplicity."

"The spherical is the representation of multiplicity developing itself out of unity and the referring of all multiplicity back to unity."

"The spherical is the universal and the particular, the general and the special, unity and individuality at the same time."

"Unity and multiplicity joined together in their greatest perfection is the spherical."

"Everything develops its spherical nature to perfection only in this threefold way, that it strives to represent and does actually represent its essence in itself and through itself in its unity, individuality, and multiplicity."

"Everything shows this threefold representation of its nature, is through the same closed (completed, *geschlossen*), and is in and through the same alone perfectly intellegible and recognizable." (Very important this, as hinting the fundamental process of knowing.)

"Everything obtains through the same (this threefold representation) its true end, and its true appreciation as a member of a whole." (*Glied eines Ganzen*, an intimation of Froebel's later *Gliedganzes*, or member-whole.)

"It is supremely the vocation of man to unfold, to cultivate and to realize his spherical nature, then the nature of the spherical in general."

"To work consciously for the development of the spherical nature of a being means to educate that being." (Here the educative application of his thought comes out.)

"The law of the Sphere is the fundamental law of all true, adequate culture of mankind."

Such was Froebel's grand grapple with the Sphere, seeking to seize it as it is in itself and as

a means of education. Many years later he will take up the Sphere again and incorporate it into his kindergarden for the training of the little child.

The above aphorisms show a struggle, dark, difficult to understand fully unless you know pretty well beforehand what the author means. But he sees that the spherical principle and its movement run through all things and constitute their essence. And he also sees that this movement is inherently threefold, and just through such threefold process is it cognizable by the Ego, which also has the same triple process (he does not say this last and probably does not see it, yet it is implicit in his statements). Likewise he shows an insight into the educative bearing of the process of the Sphere (he calls it *the spherical law*), which insight he had probably obtained chiefly at Keilhau in his practical work of teaching.

One other point should be noticed: the nomenclature of the above passages. It is manifestly derived from the nature-philosophy of Schelling, which Froebel picked up at Jena in his youth. Moreover, the manner is not empirical, but deductive, or rather intuitive.

We also know that Froebel began to reflect profoundly upon the spherical in nature and in man at Göttingen when a student there in 1811, ten years before the publication of the above

Aphorisms. He was led into this line of thought by the appearance of a comet in the Heavens, a sight which stirred him to the deepest thinking. Says he, in his autobiographical letter to the Duke of Meiningen (*Lange*, I. 103):—

"Walking in the beautiful suburbs of Göttingen till nearly midnight, I was suddenly surprised by a new phenomenon appearing in the starry skies above me. I knew very little about Astronomy, and so the existence of a great comet had remained unknown to me; I discovered it, so to speak, by myself, and hence it produced within me a peculiar charm. It remained in the still nights an object of my contemplation, and the thought of the universal spherical law developed itself and formed itself at that time particularly, and during those nocturnal walks, from which I often returned in order to fix the results of my thinking, and after a short sleep to pursue the further development of my mind."

At Göttingen, then, when Froebel was twenty-nine years old, the Sphere, as the mediating principle between spirit and nature, had entered deeply into his thought-life. From the Sphere he had not yet made the transition to the Cube; this no doubt came to him more or less distinctly through the study of crystallography with Professor Weiss, of Berlin, to which city he went on leaving Göttingen. Still, he has not one word about the Cube in his Aphorisms; that fruit he

plucked not till the Kindergarden had ripened in his soul.

We have already noticed that the language and manner of thinking shown in these Aphorisms recall the philosophical construction of nature, which is connected chiefly with the name of Schelling, but which was a mighty spiritual influence working in the time. In this impulse Froebel shared to the end of life, and, more than any other man, carried it over into education. Undoubtedly he received its first dawnings as a student at Jena, where he was from 1799 to 1801. During this time Schelling was lecturing at the University of Jena, and was the strongest influence there, probably, being in the meridian of his philosophic career. Froebel does not seem to have attended Schelling's lectures, but the eager receptive youth must have heard much about his doctrines from brother Traugott and other fellow-students. Young Friedrich imbibed, doubtless obscurely and fragmentarily, the philosopher's view of nature as well as his terminology, both of which can be traced in his later writings, notably in "The Education of Man." It may be here remarked that the influence of Jena upon Froebel has never been adequately preciated by any of his biographers.

o we have reached back to the beginning of the development of the Froebelian Gifts in the soul of Froebel himself. For they were a con-

tinued evolution going through his whole mature life, from youth upwards; it may be said that Froebel's spirit unfolded with his Gifts and into his Gifts, which are at least one very significant expression of the man in his striving for self-realization. The Second Gift, including, as it does, the First Gift in the Ball, is truly the orginative or genetic Gift of the whole series, and Froebel's creative spirit poured itself out into the same at important stages of his life, which is connected together on an interior line by this Gift. These stages we shall briefly recapitulate in an ascending order, as they were before given in a descending order.

I. Jena, 1799–1801. Schelling's influence. The dark brooding idea of the unity in man and the world begins to ferment, uttering itself in a vague philosophic nomenclature. Froebel was nineteen years old when he left Jena after a stay of nearly two years altogether.

II. Göttingen, 1811. He finds an object which gives reality to his idea, namely the Sphere, in which he sees the oneness of spirit and nature. Thus his inner thought has found an outer form for its bearer. Twenty-nine years old.

III. Keilhau, 1821. He now shows his insight into the pedagogical purpose of the Sphere, which is to become a grand means of human education. See the last aphorisms above cited. Thirty-nine years old.

IV. *Education of Man*, 1826. In this work the Cube is added to the Sphere, and both are the results of force indwelling in nature, which is especially seen in the production of crystals, all of which is educative. Forty-four years old.

V. The Kindergarden, Blankenburg, 1837. The Sphere and the Cube have reached their educative purpose in the Second Gift, being employed for the unfolding of the child-mind. They are opposites, yet in unity; but the Cube is not distinctly derived from the Sphere. (See his essay on the Second Gift.) Fifty-five years old.

VI. About the year 1844 (Hanschmann in *Froebel's Leben*, s. 327) the intermediate forms are added, namely the Cylinder and apparently the Cone with it. Sixty-two years old.

VII. His last statement (1852) drops the Cone and mentions the Ball, Cube, and Cylinder as the three forms of the Second Gift, which has remained as he left it down to the present. Seventy years old.

Such is the development of Froebel himself into his Second Gift, a development running through more than fifty years of his life and receiving the last touch with the last thoughts of his last days. It begins with the vague, indefinite idea fermenting chaotically within the soul of the youth, and passes through various stages of clarification, till it attains its final shape within

the soul of the old man. Undoubtedly he is struggling to obtain clearness himself; but with this effort is coupled another end, at first unconscious, yet becoming conscious with time; it is to find an educative means by which the little child can be assisted to unfold into his spiritual heritage, bringing him into harmony with his true self, with nature and with the Divine. In a deep and worthy sense Froebel himself was always a child, he unfolded as a child, yet with the creative power of a genius. Not till he created the instrumentalities for developing the child, did he himself develop fully and attain the final fruitage of his spirit.

Looking over the works of his successors in the exposition of this Second Gift, we are compelled to say that they all drop far behind him in profunity and in deep living intensity of purpose; sometimes we have unwillingly to think that they have not rightly understood him.

II.

THE DERIVED GIFTS.

We now come to the series of the Gifts (quantitative), which distinctly point to the Second Gift as their origin. They include all the rest of the Gifts so-called till the Occupations, and are usually counted as eight, nine, or ten in number. The first six Gifts were designated in their numerical order by Froebel himself, and his designation of them has become settled.

The chief term or category which characterizes these Gifts is, accordingly, Derivation; they all go back to the Cube and Sphere in plain ancestral lineage. This Derivation takes place by division, abstraction, separation in some form; it belongs fundamentally to the second stage of

the Psychosis. As the shapes are extended in space, are quantitative, the division is manifested to the senses, is made visible, and thus is adapted to the child.

The line of Derivation running through all these Gifts, is to be carefully brought out, as it is that which connects them in a transparent unity which the child first feels and then sees, thereby acquiring his best lesson.

The Derived Gifts, taken by themselves, pass through a triple process, of which the stages are the following: —

A. Gifts of Concrete Magnitude, having all the dimensions — length, breadth, thickness — showing sensuous completeness. That is, they are solids, and are derived directly from the Cube by visible separation.

B. Gifts of Abstract Magnitude, in which the ideal separation or abstraction takes place from the Cube, producing the surface, line, point, which, however, are visibly re-embodied for the child in a solid.

To the first belong the Third, Fourth, Fifth, and Sixth Gifts; to the second belong the rest of the Gifts.

C. The Return to Concrete Magnitude out of Abstract; the point by its very nature turns about upon itself and goes back, through line and surface, to the solid. This third stage, though absolutely necessary to the psychical-movement,

needs no new Gift for its expression, but only a conforming adjustment of the old ones.

Such is the general process underlying and linking together the Derived Quantitative Gifts. This process must be grasped not simply as the unity of opposites, but as the living movement of the mind which manifests itself in these external shapes. With them the child's Ego feels its own intimate relationship, and is thereby set to work in its own inner process of unfolding.

A. Gifts of Concrete Magnitude. These Gifts are solid and embrace what are usually called the Building Gifts. They belong to the first stage of the total Psychosis of the quantitative Gifts, as in them the Ego takes the immediate sensuous object in its material fullness. They are geometrical primarily, but arithmetical secondarily, and then show the union of both in measure or mensuration. For this reason they are architectural, since all architecture has form and number, and must measure the solid form by means of number.

The Gifts of Concrete Magnitude will also show in themselves the complete process of the Ego, which made them, and in the present case made them for the purpose of unfolding itself. The three stages will be as follows: —

1. *The rectilineal series*, in which straight or right lines dominate the forms. The above men-

tioned Gifts (Third to Sixth inclusive) are wholly rectilineal and mostly rectangular. This is a one-sidedness even in a geometrical aspect, which loudly calls for a new adjustment. Hence the following: —

2. *The curvilineal series*, in which the curved line finds its recognition. But this series was not elaborated by Froebel, though he seems to have thought of it. Nor has it been wrought out to its due fullness by any of his successors, though Goldammer has made a good beginning.

3. *The unification of the rectilineal and curvilineal elements*, by which means some of the most important architectural forms of the past can be shown. For the right line and the curved line, though different, at last belong together and must be built together in the complete edifice. The architecture of the human race can now be illustrated and rebuilt in its essential features by these little blocks for the use of children.

The distinction between the rectilineal and the curvilineal goes back to the two kinds of lines, the diametral and the peripheral, implicit in the Sphere. But these two kinds of lines will become completely separate and explicit in the Gifts of Abstract Magnitude (in the Sticks and Rings). At present the line is still held fast in the solid, though visible; it is not yet free.

It may be said here, that, without the curvilineal element the derivation from the Second

Gift is incomplete, since there are no round solid forms corresponding to the Sphere and Cylinder. Yet rotundity comes first in the genetic process, so that the curvilineal may be regarded as deeper than the rectilineal, since it reaches further back, indeed it returns to the very origin of the Gifts in their generating shape, the Ball.

To leave out the curvilineal element, therefore, deeply violates a well-known Froebelian principle, namely, to employ all the material which we once introduce, and not to have any piece left after our construction, as litter on the table or in the mind. Particularly the Cylinder — what is the use of it, unless it too be genetic, the source of forms?

At present, however, we shall drop this subject and pass to the rectilineal Gifts, which lie before us for exposition. This, in order to be educative, must bring into prominence the psychical movement which lies implicit in the child's mind, but which is brought out and made explicit by these Gifts, whose innermost process is in deep correspondence with the budding Ego.

1. *The rectilineal series.* This is what we are now to set forth in some detail. These Gifts are four in number (Third to Sixth inclusive), are all solids of various sizes and shapes, and are all derived directly from the Cube by division.

We have already noticed the fondness of

Froebel for right lines. His was a crystallographic spirit both by nature and by training. Moreover, this training extended to architecture, especially the Greek, which is almost wholly rectilineal and rectangular. And in the moral nature of Froebel we think we can trace an analogy to the rectilineal. He was a man of rectitude, a straight-lined character even to obstinacy at times.

The rectilineal series embraces what are usually called the Building Gifts of the Kindergarden. As before indicated, man begins to use the right-lined forms in his early construction; he first gets rid of the round shapes of nature. Still he returns to the round shape, makes it over, and adjusts it anew to his rectilineal forms. This movement we shall see justify itself in the history of architecture. Hence the curvilineal element must be added to complete the process within and without.

Having laid out in advance these divisions, and subdivisions, whose justification is to be adequately seen at the end, we shall proceed to give some special remarks on the Building Gifts in succession.

THE THIRD GIFT.

From the preceding Gift the Cube is taken and repeated in the present Gift; thus the connection is manifest. Still, difference enters also; this Cube is divided into eight small Cubes, the former having the size of two inches, the latter one inch. The two-inch Cube is thus halved each way, that is, according to its three dimensions, length, breadth, and height.

Here we observe the fact of separation visibly presented to the child, and this separation productive of objects of a similar kind, though smaller than their parent; they may be called the lesser members, the children of the Cube family.

Thus the Derived Gifts, of which this is the first, begin with the seen act of separation. Such we must regard as the characteristic fact of it, for all Derivation is a birth, is in some manner a separation, a dividing of the thing from its source. The Cube in the preceding Gift was also derived by separation from the Sphere, but this separation was internal, ideal, whereas the present separation is external, visible, manifest to the senses of the child. Or we may say that the first

or ideal separation of the preceding Gift is made real in the present Gift.

At the same time the child, after separating, can put together again, and thereby show the return to unity, which, though external, suggests always the inner process of the Ego. Then he can begin to combine several of these cubical forms and so bring to light new forms; in this way he starts to using the principle which runs through all the quantitative Gifts, that of external combination to produce forms.

In this Third Gift the child will be acquiring slowly the conception of size (quantitative or space-occupying) as distinguished from form (qualitative), since the forms are the same, while the sizes are of two kinds. Moreover counting with incipient arithmetical operations will start into activity, as the child sees the one become two by separation, then each of these two is separated again, and finally each of the fours is separated. Thus he sees a unit reached at which separation stops, and the movement begins the other way. This final unit is worthy of a name: it is the unit of measurement, and the returning process is properly that of measure, and this unit (the small Cube) measures the total object (the large Cube).

Such is the most important fact of the present Gift. The cubic inch, which is now visible, is the unit of all measurement of solids. By means

of it and its multiples (cubic feet, cubic yards, etc.) the solid contents of the whole earth are measured and expressed. Nay, the child beholds the actual unit, which is the cubic inch, and the process of measuring, though he may not be able to count the number of cubic inches in the large Cube. Still the principle he sees and he will not lose it. The skillful kindergardner will be able to play this process of measurement in a number of engaging ways, so that the child will get possession of a veritable *modulus* or measuring principle of the material universe, or indeed of all space. Just that little wooden cubic inch has such a magic power!

From the cubic inch is derived directly the square inch, which is the unit of measurement for all surfaces, with its multiples (square feet, square yards, square miles, etc.). So we measure the earth's surface, and draw boundaries in geography, and compare the size of countries. In this way the little child is getting into his head the primary measuring principle for the whole world. By a like derivation we can get the line which is now the linear inch made visible in the small Cube, by means of which the child slowly acquires a judgment of length and distance. Of course the kindergarden Gift is adjusted to the legal standard of measurement.

Moreover, this inch is what the race, or the Anglo-Saxon portion of it, has adopted as its

principle of measurement, and the child is following therein the footsteps of his kin and kind. Undoubtedly the inch must be derived, determined, obtained by some process — but this need not trouble us here. For us and for the child the inch is something given — a Gift — of which we have to take possession and learn to use.

Now we see the fundamental necessity of the small Cube and the large Cube in the present Gift — only thereby can the child get the conception of measure, and start to comparing the material world quantitatively. And this quantitative measurement of sensuous objects rises into a great spiritual fact in judgment and reasoning.

Language has an important place in this Gift, as every kindergardner knows. The position must be accurately designated, and the movements determined by the word of command — all of which requires a careful use of speech.

The Third Gift, being the first one of the Building Gifts is a kind of overture to what follows; out of it flows the silent music of construction. The child will see the Cube or cuboidal forms in the edifices around him; especially he will notice the large hewn stone in foundations and walls, if he lives in city or town. The house itself, apart from its sloping roof, has usually some shape approaching the Cube. Man's architectonic soul might almost be said to be cubical, especially at its opening, for the Cube seems to

be that form which it builds about itself as its outer garment. The hut, the room inside, the door and window, even the materials of stone and brick suggest the Cube as their typical, originative shape. The builder must first set his house firmly on the ground, like the face of a Cube on the child's table; then he constructs the other sides around himself and overhead, whereby he has a home for his inner life and that of his family. He goes inside of a Cube in order to live and to have protection; for this shape does not rock on its foundation, and it has all its corners, lines, and surfaces explicit against the outer world, standing ever prepared for an assault from Nature's rude elemental forces, a fortress outside, a home for the nestlings inside.

Another characteristic of the present Gift has been often emphasized; it satisfies, by its division through the center and the visible results thereof, the child's strong bent for seeing the inside of things. Has not his own home this inside, has not he too? So he often breaks his toy as soon as he takes it into his hand. He has the presentiment that the outside is not the true reality, that it is somehow determined from the inside as he is himself. For he soon becomes aware that every motion of his limbs has its inner cause, his outward manifestation simply tells what is inward. So the getting to the point which determines what appears is his strongest aspiration, and its

fulfillment brings his greatest pleasure. If he cuts open the apple or the orange and beholds the seed, he is really at the source of the apple or the orange, though he does not know it; he sees the point whence the fruit came, he sees the central point which determined the round ball, its genetic principle. Still he cannot see the total vegetable process by which the seed becomes the apple. But he can see directly with outer vision the Cube and its divisions, by which the one larger Cube (say as parent) generates many smaller similar Cubes (say as children).

OBSERVATIONS ON THE THIRD GIFT.

1. As the outer separative fact and the inner separative act are the most striking and significant matters in this Third Gift, we shall do well in penetrating to its psychological import. The infant loves the play of separation and return, and will amuse itself for a long time with the simplest form thereof. It will take off the lid of a small box and put the same back again over and over in dozens of repetitions, out of pure delight at the process. We need hardly remind the reader that this process is really that of the child's own Ego, in an external manifestion. The child, therefore, is finding himself, he is getting to know what he is within by this outer play; he is educating himself!

By means of the Third Gift with its division, the child is developing the separative, analytic, discriminating power of mind. He must practice the separative stage of the Ego, which is the first unfolding out of his implicit, potential state, and corresponds to the bud separating itself into the full-blown flower. His means of practice must be found in the forms of the sense-world, especially in this Third Gift, which also shows so well the return out of the separation.

In this process the first separation which the child makes is to distinguish himself from the block as an object; thus he has primarily to make the distinction between himself and what is not himself (technically expressed, between Ego and non-Ego). Thereby he has the ground of all separation, division, distinction within himself, ideally; this he finds to be real also in the Cube, which, in a manner similar to himself, divides within itself. Truly he is getting most valuable experience, he is finding out that the whole material world is separable, in fact is just the separable, divisible, derived, not the self-centered or the self-determined.

Still he must always re-combine the separated; he must not remain destructive, but must be constructive, nay, he must come back to himself through reconstruction. This is the return, which, though outward, is also inward, having a response in the child's own Ego.

Here lies the deepest function of the kindergardner. She gives to the child the established, the prescribed — this Gift — but in order that he may work it over into himself and thereby reach the process of his freedom. She is a kind of Providence over the child, yet with the one grand end of helping make him free. For the child is not free at first hand, nor is the man; he must make himself free.

2. We can still further carry out the thought

of measurement, which belongs to this Third Gift through the division of the Cube into Cubes. It contains a subtle psychological process which we can find by a little study in the right direction.

The Cube with which the Gift starts, is immediate as a form of magnitude, is limited in space; it takes up so much extension, it has a bound on the outside. In this first stage it shows simple quantity (*quantum*) or magnitude.

Then we pass to the second stage, that of separation, in which the Cube is divided into Cubes, and the conception of number enters; how many (*quanta*) is now the question, not how much. Quantity is thus discrete, and the one (Cube) has become many ones (Cubes).

Here we have reached the unit of measurement, and with it the third stage of the psychical process in which this last unit returns and measures the first limited quantity (*quantum*). The question now is, How-many (Cubes) in the How-much (the one Cube)? How many cubic inches in the given solid? This is measure.

Such is the Psychosis of quantity, as illustrated neatly and clearly by the Third Gift with its Cube and Cubes. We shall set down this process briefly in outline.

(1). How much — simple magnitude.

(2). How many — number.

(3). How many in How much — measure.

All of which the child, simply observing and then performing the operations of the Third Gift, acquires unconsciously, whereby he has made a start in geometry, in arithmetic, and in their unity, which is measure (or mensuration).

It may be said that these Gifts show the primary Mathesis, or the becoming of Mathematics, which is the beginning of man's completer mastery over nature, and the primordial assertion of himself as spirit. We may still find in ourselves a sympathetic response to the idea of ancient Pythagoras that number is a God, or at least a divine manifestation of a spirit-world. But if the old Greek altitude be a little too great for us in these days, we may come down to earth in the thought that the child is beginning in this Third Gift to measure all things — first, things external, from which he will certainly pass to things internal, measuring them also by some standard or criterion, ultimately himself, or his Ego.

3. We may note again that the genetic process in the Third Gift is external, visible, an act of material separation, producing from the one large Cube the little Cubes in an interesting family of eight.

But if we compare this open genetic process of the Third Gift with the secret, invisible process of the Second Gift, the contrast is striking. The generation of the Cube from the Ball is a

work involving thought, and is far more difficult for the child, who can see with his eyes the producing act of the Third Gift. Hence the one is more a thought-gift, the other more a sense-gift.

The Third Gift, therefore, is best for introducing to the child the genetic idea which runs through all the Gifts and Occupation, and which he is to unfold within himself, coming back to the inner and deeper phase of the Second Gift when he is more fully developed.

4. The division of the Cube by three intersecting planes which cross at right angles to one another, and unite at the center, has already suggested the Third Gift. The skeleton Cube, previously described, by means of its paper planes shows the eight small Cubes. The Third Gift springs directly out of the process of the Second Gift, which is verily the originative Gift.

Thus the Third Gift shows a stage of evolution out of what has gone before, and presents to the child a little fortune in the shape of mental training through play. It brings to him form, number, and chiefly measure; it calls forth arrangement, location, speech; it wakens his judgment, and starts his building soul to work. Especially does he begin to verify that ancient definition of man as the "measure of all things."

THE FOURTH GIFT.

The two-inch Cube is again taken as the starting-point, whereby the line of connection with what has gone before is visibly kept up, Division is also introduced, but in a new way; the Cube is first halved, then each of these halves is halved at right angles to the previous cut; finally each of these four pieces is halved, not crosswise into a Cube (as in the Third Gift) but lengthwise into a Parallelopiped or Brick. The first two cuts are the same as in the Third Gift, the last two cuts make the difference of form by the difference of direction, which is longitudinal, thus producing a long block (or oblong).

Mark, then, this change of division, which is really a change of derivation, so that the derived blocks have a new shape. The result is we see a Gift with eight Bricks — forms oblong, not cubical. This manner of division is always to be carefully noted, for it leads back to the manner of genesis, the movement of creation, which may be compared with generation by division in Natural Science (sometimes called fissiparism).

Thus the Cube in the present Gift has produced a shape unlike itself in shape, whereas in

the previous Gift the shape produced was like its own — the cubical — though not of like size. The parent has now begotten a child of a more deeply different character, not merely his own picture in miniature (as in the Third Gift), but of another aspect and behavior.

Now the character of the child must be pronounced to be a decided advance upon that of the parent, taking the human as the criterion. The Cube has begotten the Brick, but the latter is more varied, more versatile, more man-like than the former. Let us compare. The Cube, though a stable, is a stolid being; the same thing whichever way you place him; sameness, indifference, from whatever point you look at him; a figure whose nature is to be almost wholly bottom; try to elevate him a little, raise him up on his corner or his edge; now let go, and, behold! he falls back upon his broad base with a supreme content, yet with a stolidity which is captivating to the scoffer, but creates despair in the heart of the benefactor. We might almost call him a swine for the solid comfort he takes in lying down, and we almost hear his grunt. Indeed why is not that expressive term, solid comfort, originally derived from the Cube, the self-satisfied solid?

But we have strangely disturbed this phlegmatic repose of the Cube by the new process to which we have subjected it. We have divided it, not according to the three dimensions but accord-

ing to two — say, height and breadth; behold the result. The third dimension, length, remains undivided, and in that state appears in every block of the Gift. Thus length is emphasized; each block is twice as long as it was in the previous Gift, and the whole Fourth Gift taken as a line is twice as long as the Third Gift taken as a line. Surely the movement is toward the surface and the line, ideal elements of magnitude, which are here prophesied, and which are hereafter to come forth in their own right.

Let us now take a glance at the Brick. First of all, he can stand upright, like a human being, even if a little tottering; when he lies down, he can turn over on his side — first on his right side, then on his left side, like many another poor mortal seeking repose. To be sure, when he does lie on his back, he is as flat as the Cube, yes, even flatter. Then he is slumbering, with all his capabilities not only at rest but asleep. Manifestly the Fourth Gift shows an approach toward the human, when compared with the Third Gift; there is an evolution out of a lower more homogeneous form into a higher, more heterogeneous form.

This fact will be further emphasized by noting that the Brick has differences in its parts, in itself. That is, the Brick is not only different from the Cube, but is different within itself. Three faces of it differ from each other — which

we shall designate as the flat face, the side face, and the end face. Each of the three dimensions — length, breadth, height, is represented differently, by a different surface in size and form, whereas in the Cube the three dimensions are the same. Thus into the shape itself difference has entered — difference of dimensions, which thereby are contrasted with one another in the same block.

It is manifest that the simple implicit unity of the Cube, in which all three dimensions were alike and indifferent, has been broken up by the Fourth Gift and differenced — all three being different in the Brick, and likewise being made visible. Hence the child can now perceive and contrast length, breadth, and height in the present Gift, and learn the names corresponding. Moreover he can begin to acquire the idea of proportion, as these dimensions are here proportionate: the breadth is twice the height, and the length is twice the breadth, or four times the height. So the proportion 1 : 2 : 4 becomes a visibly attested fact in this Fourth Gift.

Moreover, the child will begin to catch the glimmer of a psychical process in these three different faces of the brick, each of which has one line in common with the other two faces, the whole surface being bounded by the repetition of two different lines. For instance, the flat face is the largest in size, and so has in it the least

difference. On the contrary, the end face is the least in size, and so has in it the most difference. Finally the side face is intermediate, being bounded by the shortest line in common with the end face and by the longest line in common with the flat face. Thus we catch the faint outlines of a Psychosis in these three faces, very external and shadowy as being spatial, yet hinting in its triple process the genetic source of the three faces and of the three dimensions — length, breadth, and height — hinting also the reason why there are three, only three, and no fourth dimension.

In each Brick each face is repeated, is double, and the two look in opposite directions — in which again difference appears. Then the Brick is repeated seven times, making eight pieces in all.

The next matter coming up in the consideration of the present Gift is combination. Herein the field is far larger, more varied and interesting than in the preceding Gift. The power of inclosing space is much greater in the Bricks than in the Cubes, for the Brick is a Cube flattened out to twice its length.

Also we should notice the different kinds of superposition, of which the Cube has only one kind, while the present Gift has three kinds — end to end, side to side, face to face. Then these three primary kinds of superposition are combinable in an almost infinite diversity of ways

with one another, showing a magic power of metamorphosis out of the simplest forms. No wonder that the elementary form of so much of man's construction goes back to the Brick.

The Cube has no such innate power, as we may name it. The reason is that the Cube has no diversity in itself, in its own nature; it is everywhere alike, in length, breadth, height. But the Brick has just this diversity within itself, each dimension is different, and this difference is carried over into every form constructed of it. The indifference of the Cube destroys its formative power.

But with this increase of formability in the Fourth Gift there is need of a corresponding increase of skill in manipulation. The hand of the child now gets unusual lessons in delicacy of movement, and his eye must employ niceties of discernment never before called forth. Let him stand the eight Bricks end to end, one on top of the other; it is quite a discipline, not only for hand and eye, but also for the inner spirit. Surely the child has to balance himself within before he can perform this act outside; his mental line of gravitation must be put within its base, before he can adjust the physical line of gravitation in correspondence. The equilibrium of the blocks compels the equilibrium of his Ego, which has to pass from the unbalanced to the balanced in this Gift, from the scattered to the collected.

It has long been noted by observers that the child is much fonder of the Fourth than of the Third Gift. The reason becomes obvious from the preceding statements. The Cube is monotonous, has in it too little difference to call forth the separative stage of his mind, which is really his creative energy. But the Brick has diversity in its very form, yes a triple diversity, which at once appeals to him because it corresponds to the triple activity of his Ego, which is thus roused from its dormant state by the voice of the outer object attuned to his own soul.

OBSERVATIONS ON THE FOURTH GIFT.

1. A very significant point in the Fourth Gift is its power of inclosure, which is the main element of it as a Building Gift. For all houses are inclosures, and the walls are made of some kind of block, — stone, wood, brick. The child may begin to remake in this gift the first faint outline of his own abode, the house where he was born, which in one way or other he has to reconstruct at some time for himself, though it has to be given him at the start.

The Third Gift has a very small power of inclosure; the eight Cubes are able to inclose just one of their kind, when completely used for a wall. But the Fourth Gift has a relatively great power of inclosure, which varies from the size of two Cubes up to twelve and more. There are three fundamental ways of inclosing through the Bricks: by placing them together on the end-face, on the side-face, and on the flat-face. Each of these three ways of inclosure has two different forms, the oblong and the square; the latter will inclose more than the former. The Cubes of the Third Gift, however, when used as a complete wall, will produce no oblong form,

but simply the square form, inside of which is the empty square. The diversity of the Fourth Gift, or, we may say, the versatility of it, is, in this regard, marked by a striking contrast with the stolid conservatism of the Third Gift, which, amid all its changes, cannot be driven from its square or cubical form, or only with great unwillingness.

Indeed two very different temperaments they have, these two Gifts; the one phlegmatic, we were going to say Teutonic, but that is not exactly fair, especially to our beloved Teuton Froebel. The other is sanguineous, we were going to say American, changeful, adjustable, possibly a little volatile, certainly capable of presenting a number of different sides to the world by merely turning over.

2. Still the Third Gift has its own special province, its own function, which it is to fulfill in the organism of these Gifts. We have already said that it was the measurer, that it had the modulus or measuring unit for all space and all matter. Accordingly the Cube is used as the measurer of the Brick in all its shapes, as well as of what it incloses. For instance, the child puts the Cube inside the inclosed space which the flat sides of the Brick placed together produces, and he find show many Cubes it will hold. Thus he starts to measuring his little universe, and he begins to behold in it an order, whereby cosmos

primordially rose out of choas, and will rise again out of his chaotic little soul.

So the Third Gift retains its character and function, it is not by any means lost or to be lost in the multiplicity and changefulness of the chameleon-like Fourth Gift. Its very solidity and permanence makes it the basis of measurement, for the standard ought not to change. Its fixed character causes it to be a fixed criterion for guaging anything. The objections which have been urged against the Third Gift on account of its lack of variety and variability, are really in its favor when it is regarded in its true function, that of furnishing the measuring unit to the child, and also to the man.

3. In such fashion we may unite in a kind of marriage the Third and Fourth Gifts, and make the union a happy one. The heavy Cube and the versatile Brick — each has its own part and place in the kindergarden family. In a number of respects they are alike, each has eight corners, twelve edges, six sides, thus hinting the common derivation which we saw coming forth from the Sphere. Both are rectilinear and rectangular, though in different ways.

4. Another analogy we may draw, taken from the past nations of the world, though such analogy must not be pushed too far. The Cube and the square are more Egyptian, the Brick and the parallelogram are more Greek. The pyra-

midal form, which belongs with such tremendous emphasis to the valley of the Nile, rises to a point out of a Cube, as already set forth; the form of a Greek temple was that of the oblong parallelopiped — the Brick with a slanting roof set on top. The ground plan, the faces and sides of the Parthenon are parallelograms, as well as the temenos or sacred inclosure. Egyptian art is massive like the Cube, heavy, fixed, unfree, monotonous, full of samenesss and self-repetition to a surprising degree — think of those six hundred sphinxes and more ranged in two lines along each side of the road at Luxor. Greek art has variety, has freedom, and thus strikes the key-note of all artistic form for the future. Yet both Egypt and Greece contributed mightily to the culture of the human race; both peoples, we would fain think, have a faint, far-off reflection in these two play-gifts of Froebel, intended for the little child who is to play over in his way the history of humanity. So we may say, if we keep in the bounds of moderation, that the Third Gift is an Egyptian, and the Fourth Gift a Greek.

5. The Brick has varying degrees of stability, as an offset to its versatility; the Cube has one and the same degree of stability, as an offset to its stolidity. Each has its drawbacks along with its advantages. Place the Bricks erect in a row, and each seems to stand up like a man; but a

little blow from the outside upsets it, and if it falls against its neighbor, the whole row goes down. You cannot do that with a Cube or a row of Cubes; it presents the same stolid, stoical face to the blow of fate; though you tumble it over, you cannot upset it, as it presents to you exactly the same look without the least twitch or distortion of feature, changeless as the face of the Sphinx. I do not think that I like very well that play of the Bricks in which the whole row is made to fall by some external impact, though undoubtedly the children are fond of it, and it seems to have the approval of Froebel. But it has too strong a flavor of external determination, of unfreedom, in fine, of fatalism, which is certainly not to become the belief of the child, at least not in a free land. Not too much of that play, my dear kindergardner. Rather that other play of equilibrium, which cultivates the well-balanced soul within, erecting a lofty monument of eight Bricks end on end, without its toppling. A little feat of daring it is, which, however, can be done with perfect safety by keeping the center of gravity always inside the base.

It is true that the historic parallel already hinted holds good here: the Greek world, with all its genius and versatility, was at last struck by the blow of fate, coming from an outer might, which hurled it as a nation to the ground, never to rise again in its ancient glory. Well, that

blow of fate struck Egypt too, which stood the pummeling thousands of years, it may be said, before the Cube was broken to pieces. But the pyramid and the sphinx are there yet.

6. The Brick shows more the surface, less the solid; is more ideal, less material than the Cube; shows a movement from Concrete towards Abstract Magnitude.

It has a triple diversity, yet also repetition; but it is just this diversity which is repeated. Thus the Brick may be called double-faced; the front face which is seen, suggests the threefold variation — length, breadth, thickness; but the rear face which is unseen, is simply a copy of the front face; so the Brick, though double-faced, is honest.

THE FIFTH GIFT.

The Cube is again taken as the starting-point in the present Gift, but it is the three-inch Cube. It is now divided into three sections, in three different ways — length, breadth, and height. The result is 27 one-inch Cubes, in contrast with the 8 one-inch Cubes of the Third Gift. Here we see the connection between these two Gifts, as well as their primary difference. The unit of measure is the same, but in the one case there is the cube of two, and in the other case the cube of three.

Here it is necessary for the student to begin to consider the reverse process in both these Gifts. If the large Cube be taken as the unit (which is possible), we have the regressive or fractional series; for instance, in the two-inch Cube (Third Gift) it is $1/2, 1/4, 1/8$; while in the three-inch Cube it is $1/3, 1/9, 1/27$. To be sure, this regressive or fractional series is as yet implicit, not yet unfolded, but is soon to be unfolded; we shall see it make its appearance in the course of the present Gift, in which the fractional act is made external and visible to the child.

Such is the primary division or derivation of

the Fifth Gift; but now comes the secondary division which is wholly different in kind from any division heretofore. This is the diagonal division. Three of the one-inch Cubes are halved by a diagonal line bisecting opposite right angles, making six triangular half-Cubes (prisms). Then still another cut at right angles to the preceding cut gives four quarter-Cubes, making twelve such pieces for three Cubes.

As the result of the foregoing divisions we have before us the Fifth Gift, made up of 6 triangular half-Cubes, 12 triangular quarter-Cubes, one-half in size but the same in form, and 21 Cubes — 39 pieces in all.

We may now study the various kinds of difference which have been introduced by the above divisions. First of all, the derived forms are in part like and in part unlike the total Gift, which is a Cube. Thus they unite in this regard the Third and the Fourth Gifts, combining the likeness and the unlikeness of both. Herein we may note the advance of the Fifth Gift. In the second place, the derived forms differ from one another in part, and in part resemble one another. To be more precise, there are three sets of descendants from the ancestral Cube in the present household; first, there are the children, the small Cubes, just like the parent in form, only not so large; secondly, there are the grandchildren, the half-Cubes, sprung of the chil-

dren, the small Cubes, but not resembling father or grandfather in form, or just half like him; finally there are the great-grandchildren, the little quarter-Cubes, sprung of the half-Cubes, sprung of the little Cubes, sprung of the big Cube. Such a lengthy genealogy rises before our astonished eyes in this business — a genealogy not temporal but spiritual.

In the third place, we must consider the differences which are in the form taken by itself — differences in dimension. Here the three sets of descendants show diversity, each being marked by its peculiar traits, each having its own individuality. The Cube has no difference in the three dimensions, being alike in length, breadth, and height. But the half-Cube has within itself two different dimensions, so too the quarter-Cube, which, however, differs from the half-Cube in size. It may be here added, in parenthesis, that the perpendicular height of these triangular prisms is not considered, otherwise each of the three dimensions in them would be different.

The foregoing account seeks to describe the nature and the genesis of the Fifth Gift. Next we ask for its central fact, its very heart. What is the distinguishing part of it? Can we put our finger upon its essential characteristic?

Undoubtedly the diagonal division is the distinctive thing in the present Gift. It introduces

a new geometric principle, the bisection of an angle, not of a line as hitherto. It calls up a new geometric form, the triangle; previously we have seen only quadrangular shapes (except those made by external combination). Moreover it brings to view a new angle, the acute; hitherto we have had only right angles. We see plainly that a vast fresh vein of geometric wealth has been opened; to the sides of the figure have been added angles, and to the quadrangular has been added the triangular. On account of this profusion of geometrical elements the present Gift is especially rich in symmetrical forms (usually called by kindergardners forms of beauty) which are mainly based on balanced geometric relations. Indeed these forms are much better adapted to this than to any other Gift, for the Fifth Gift is the most completely geometrical of all the Building Gifts.

But that which we may set down as the most important educative fact of the Gift is that the fraction now appears to the vision of the child, and, more remotely, the measurement by fractions. In the Third and Fourth Gifts we have had the one-inch Cube as the unit of measurement; but in the present (Fifth) Gift we have also the one-inch Cube bi-sected and doubly bi-sected; the result is the appearance of the fraction of the inch. That is, the unit of measure now measures not simply wholes of itself, but parts

of itself likewise; it works by division as well as by multiplication.

Thus the fraction becomes explicit in the present Gift, explicit in thought; previously it has been implicit in thought, the fractional possibility of the Third Gift was not developed in treating of that Gift. But now we go back to it and behold our new knowledge applicable there also; the child is likewise to return and see the new fact in the old play. In the Third Gift we may now unfold the fractional series of two, namely, $1/2$, $1/4$, $1/8$; and in the Fifth Gift we still further unfold the fractional series of three, namely, $1/3$, $1/9$, $1/27$. Thus we have developed for the child the two kinds of series, multiplicative and fractional, in two different numbers (two and three). And these numbers, we should note well, make up the thought-basis of all numbers, with the one added, which is also present as the starting point in either series and in both Gifts.

Such, then, is the beginning, and we may repeat that the first three numbers — one, two, three — constitute the generative thought for all other numbers. And the psychological reason even if a little abstruse may be here given to the kindergardner: these three numbers are a Psychosis, the primary triple process of the Ego numbered — that is, each step of this process is held apart by itself, and the acts of such abstraction are named in order, one, two, three. Such

is the numerical Psychosis, foundation of all number begotten by the Ego for the Ego, and hence bearing the impress of its threefold movement, namely, unity (one), separation (two), return (three).

Accordingly, the child sees and makes fractions in seeing and making that diagonal cut; further, he beholds the principle of fractional division repeated in the second cut. And now we wish to declare our opinion that the third and fourth cuts ought to be made or somehow represented in at least one of these one-inch Cubes, through bisecting the four right angles at the center, whereby the Cube will be divided into eight small triangular prisms. Thus the fractional series ($1/2$, $1/4$, $1/8$) is made complete, and the conjunction with the Third Gift is without a break. As it is, the last link of connection seems missing, and the chain is left hanging down in the air, without having joined itself to its source. For the Fifth Gift, as we have it, stops the series with $1/2$ and $1/4$, omitting $1/8$, which leaves one of its most important relations to the Third Gift unestablished, and its symmetry, specially its cubical symmetry, incomplete ($1/8$ being a numerical cube).

Thus the Fifth Gift would show the unity between the two complete fractional series: that on three, $1/3$, $1/9$, $1/27$, and also that based

on two, 1/2, 1/4, 1/8. In this respect it would be a perfect unification of the two Gifts, without a fragment or fraction missing.

But in the sweep of this Gift is found a deeper, more comprehensive unity than in the foregoing unity of the fractional element taken by itself — the unity between both the fractional and the multiplicative. This will be manifest in the following statement: —

1. It has the progressive or multiplicative series, composed of the multiples of the unit of measure (cubic inch).

2. It has the regressive or fractional series composed of divisions of the unit of measure (cubic inch).

3. It has their unity in its movement, for these fractions reunite and return to their source, which is the unit of measure, and which is thus restored out of its division.

We need hardly remind our reader that here again we find the psychical process of the Ego. And it all can be played by the child and taken up into his mind through play. The whole thing is visible in the blocks and their manipulation. It can be truly said that the child is now playing mathematics into himself — both geometry and arithmetic, as well as their union in measure (or mensuration).

Among the arithmetical forms and processes we note the odd and even numbers, the integer and

the fraction, the multiplication and the division of them in many ways, even their self-multiplication and self-division, in the forms of cubing and squaring, as well as of cube-root and square-root. The geometric forms we have already noticed in treating of the different angles, and also triangular and quadrangular shapes.

It is not so good a Building Gift as some others, still we must observe that to the cubical or cuboidal house it adds a roof with its triangular gable or pediment. Also the child may begin to build round, making the suggestion of an arch by using the small triangular prisms as voussoirs.

OBSERVATIONS ON THE FIFTH GIFT.

1. One of the difficult questions in regard to this Gift pertains to its adaptation to the child. August Koehler, who had great insight into the practical side of the Gifts, and was a very successful trainer of kindergardners, says it ought not to be given before the fifth year, and ought not to be withdrawn before the eighth year (see his *Praxis* I. 202). It would have, therefore, to pass out of the kindergarden into the primary grade, or connecting school. Koehler's thought is that the Fifth Gift should be taught through a period of three years. Goldammer would extend this period, making it four years, two in the kindergarden, and two in the next grade.

2. It would be well to have a second size of this Gift — a cubic foot has been suggested. There is no doubt that the smaller pieces of this Gift in its present size make it difficult for children to handle. If the division into eighths be added, the difficulty is increased. The claim is made that for group work the larger size is better. The child may also behold advantageously

the foot — linear, square, cubic — as the foot becomes the standard for all large measurements, and the inch drops into the background. Then there is something in having the larger child advance to the larger blocks, with which he has been before familiar in a smaller form. Possibly the one size could be used in the kindergarden, and the other size in the advanced grade.

Already we have had two different sizes of the Cube; this new size will give a third one, which is a multiple of the other too; thus the child has a new field of comparison as well as a fresh application of the unit of measure. Though the material be increased, the time employed upon this Gift can remain about the same.

With the large size the fractional element, which is the salient characteristic of the present Gift, becomes more striking to the mind of the child, more easy to be handled, and hence more easy to be played with. That is, the most important meaning of the Gift becomes more accessible to the child, for whom it was intended.

3. When we come to the Gifts of Abstract Magnitude, we shall find that the Fifth Gift has furnished the solid form from which the triangle is taken. This triangle is the right isosceles tablet.

4. This Gift, taken as whole, is capable of being divided into halves, thirds, fourths, sixths,

and even twelfths. Thus division become visible to the child in play. By the same means multiplication can be shown. But it is not the purpose of this book to go into the manipulation of the present Gift or of other Gifts; so we may p[illegible] the next.

SIXTH GIFT.

The three-inch Cube is again taken as the starting-point, which fact connects the present with the preceding Gift at the beginning, while the cubical form unites it with the whole series of Building Gifts. The primary division of the Cube is into 27 oblong Bricks (parallelopipeds), which fact carries the present Gift back to the Fourth Gift in a strong bond of connection. Yet the number of pieces is the same as in the Fifth Gift, and a Brick, though so different in form, is equal in size to a one-inch Cube, being $1/27$ of the large Cube. So the Brick can also be the unit of measure. And the same fractional relations exist between the Sixth and the Fourth, as we noticed existing between the Fifth and the Third ($1/3$, $1/9$, $1/27$ and $1/2$, $1/4$, $1/8$). Still the unit of measure must remain the cubic inch, for it is easily adjustable to all solid shapes on account of its equal dimensions, while the Brick, with all three of its dimensions unequal, would be a very intractable unit of measure. So the Cube of the Fifth Gift and the Brick of the Sixth Gift are the same in contents, but diverse in form.

The Sixth Gift has also a secondary division

(like the Fifth) but in a very different way. Six Bricks are halved transversely, making twelve square plinths, and three are halved longitudinally, making six square columns or pillars. Such a division is not diagonal, or of the angle (as in the Fifth Gift) but diaplagial, of the side or edge.

The result of the two divisions just described will give the following forms for the Sixth Gift:

18 Bricks undivided	18 Bricks.
6 Bricks halved crosswise . . .	12 Plinths.
3 Bricks halved lengthwise . .	6 Pillars.

Thus we have 36 pieces all told. We may next consider the various differences which have been introduced into this Gift by the divisions just described. In the first place, the derived forms are totally unlike the whole Gift, as we also saw in the Fourth. In the second place, the derived forms differ from one another in part, and in part are like one another, as in the Fifth Gift. Here we may employ the same image we did there, an image taken from the domestic relation. We observe three sets of descendants from the ancestral Cube. First, there are the immediate children of the parent, the Bricks, unlike him both in form and size; secondly, then come the grandchildren in two different breeds, and both of them unlike their parents or their grandparent. The fact is, there seems to

be in this Gift a tendency in the descendants to shun any kinship with their progenitors, the children disown their ancestry, disclaiming to look like their fathers. What is the matter? Some trouble in the family, or an increase of freedom? It may be said, however, that this difference between parents and children has been growing ever since the Third Gift, in whose happy domestic circle everybody was like everybody else in looks.

In the third place, we must consider the differences within the form itself — differences of dimension. The brick is herein the opposite of the Cube, having a different length, breadth, and height, not one dimension of it alike. But the Plinth and the Pillar have each two dimensions alike and one different; the Plinth has length and breadth the same but not height; the Pillar has breadth and height the same, but not length. Thus in the Sixth Gift the three sets of descendants have each in its way a difference in its own form; we may call it a rise in individuality. Hence the Sixth Gift shows greater independence in its members than the Fifth Gift, or any other Building Gift. This fact we may set down as progress. For the homogeneous is becoming more and more heterogeneous in the organism of these Gifts, which statement indicates the upward movement of organic growth. Or, taking another formula, the physical instead of the biological,

we may say that the process of these Gifts is more and more approaching the process of the Ego, which is really their creative prototype as well as their end.

If we now seek out and emphasize the distinctive thing in the present Gift, we shall find it in the secondary division of the Brick, the division into Pillar and Plinth. The latter are new forms which re-inforce strongly the architectural element in these Building Gifts. Previously we had inclosure, the wall, which is a product of the Fourth Gift specially with its Bricks; but now we have that which holds up the ceiling or roof of the inclosed space, and leaves the room within substantially free. For in this Gift a Pillar can take the place of a wall, as far as supporting the cover overhead is concerned, and wide entrances, colonnades, open spaces are possible under roof. The architectural suggestion comes out strongly, as we may note by the following forms with their meaning: —

1. The Pillar which supports what is above and does not inclose, its idea and purpose being that of support.

2. The Plinth, placed under the Pillar as a strong broad foundation resting upon the earth.

3. The Cross-beam, or architrave, that which is supported by the Pillar. It may be the Brick laid upon its narrow edge and reposing on two Pillars, with an open entrance below. Or the Cross-

beam may be another Pillar laid horizontally upon the two perpendicular Pillars and connecting them. This typical form repeated will produce the edifice with its two constructive elements, the supporting and the supported.

Moreover, this architecture will suggest the Greek, with its severe simplicity, with its rectilineal and rectangular forms. Yet not quite Greek, as the round column is wanting; still here is the square column (Pillar), and we may secretly feel its struggle for, or its longing after rotundity, which must soon come.

The division lengthwise and crosswise which is the central fact of the present Gift is found in all structure. Every architectural façade has such a division when carefully analyzed. The human shape has such a division in its median line and in its two sides, or bilateralness, the latter being indicated most completely in the two arms extended. The great works of literature are architectonic, and are to be studied in their structural divisions. Shakespeare's plays are built on lines running lengthwise and crosswise, which reveal the grand masses and proportions of his work. So the temple, the church, the artistic product; the cross itself is primarily a rude but fundamental image of man's own tabernacle, his body.

The student may now see why the Sixth Gift is so dominantly architectural with its three

forms, in contrast with the Fifth Gift, which lends itself better to the symmetrical figures of a geometric pattern, and hence leans more to ornamental than to constructive work. The Fifth Gift is chiefly for decorating the Sixth Gift. Out of the one we can make an inclosure, but out of the other we can build a house. It is a characteristic of the Fifth Gift that it has the shape of a roof in one of its blocks, and so has a place in building.

We are inclined to suggest a new division in this Gift. The pillar may be divided crosswise into two half pillars, and these again divided into two smaller Cubes, one-fourth of the size of the pillar. Undoubtedly there comes the difficulty of handling these little pieces on the part of the child. Still we have to think that the Sixth Gift reaches its true conclusion only in this way.

For thus we behold, after all the division and separation in these four Building Gifts, the return to the starting point, the Cube. They form a cycle of derivation, in whose chain the last link reaches around and connects with the first. The Cube after quite a line of derived shapes, reproduces itself, and therein has its analogy to the vegetable process in the seed, which also separates within itself, and after going through many forms of growth, comes back to itself — the seed reproducing the seed. Thus the circular

movement of the rectilineal Gifts rounds itself out to completion, and in a way suggests the next series, the curvilineal.

We shall see later that Froebel in his Eighth Gift (which was also a Brick Gift), may have introduced this division, and so made the return to the Cube, the original genetic shape, which return is now wanting in the Sixth Gift. Of course, nothing of the sort is known. But we can easily make the return through the Sixth Gift and thus complete psychically this rectilineal series.

And here we shall offer a suggestion corresponding to the one in the Fifth Gift — let us have two sizes of the Sixth Gift, one small and one large. The cubic foot will be best adapted for the large size. Then the small Cube will be two inches square; that is, it will be just the same in form and size as the two-inch Cube of the Third Gift, with which the rectilineal series started. The kindergardner will call the attention of the child to this fact, taking out the Third Gift, and he will at once make the nexus between end and beginning. Then she can show him the whole line of derivation running through these Building Gifts, whereby he will get his most valuable lesson, that of inner genetic connection in the great order of things.

The advantages of a large-sized Gift have already been touched upon: the value of the cubic foot as a measure to which the eye ought

to be trained; in social combination for building or in the so-called group-work of children the larger size is doubtless better; then the larger child feels the inner correspondence when he deals with larger things. The argument cited from the physiological psychologists who affirm the later development of the small muscles and hence insist upon the necessity of larger blocks than the usual ones, may be here omitted as of doubtful application. The chief ground is the educative one, which rests upon the psychical movement unfolded in the Building Gifts, and incorporated in them to the vision of the child, who is to play his inner self outwards in playing the process which moves through and holds together these blocks.

Thus the Sixth Gift, if the preceding division be carried out, will not only complete itself, but in the same manner will complete the entire rectilineal series. In the final Cube, the Sixth Gift comes back to its own beginning, which is the beginning of the Third Gift, this being the starting-point of the series. The Sixth Gift as the last stage, has to bring out this element of return both within itself and within the totality of Building Gifts, of which it is a member.

In this way we catch a view of the entire sweep of the present series in its inner, psychical process. The first stage is the Third Gift, which is simple derivation by means of division,

which, however, produces no difference of form. The second stage introduces difference of form in a number of ways, which are seen in the Fourth and Fifth Gifts, with their quadrangular and triangular shapes. Thus difference passes from size into form. The third step is the Sixth Gift, which, producing the plinth and the pillar (as vertical) and the cross-beam (as horizontal) returns into its origin in the final division, returns into the beginning of the series, which is the Cube.

OBSERVATIONS ON THE PRECEDING GIFTS.

1. They can be combined in many suggestive ways. One of the most fruitful is that of co-operation in building. Several little hands can be employed in rearing one structure, which may be made of the materials of one Gift or more. Thus the social principle is cultivated.

A higher form of associated play is when the children unite and build the town with its public buildings — courthouse, church, market-place, public square surrounded by edifices. Then the private houses are gathered around this center, where are the mentioned institutional buildings, and among them the schoolhouse. A little society of children is thus building the home of a society, repeating in small what their fathers have done before them and anticipating in play what they are to do hereafter themselves.

2. The child is also to have his practice in free building. When he has learned the use of the blocks and acquired certain forms of construction, he may be at times left free to carry out his own plans in his own way. But it is a great educative mistake to expect him to build at once. Let him handle the blocks and play with them a little

at the start, till he makes their outside acquaintance. Then must come ordered building which has to be prescribed in the beginning, and has to be continued till he makes the inside acquaintance with his constructive materials. To ask the child to use at once these geometric forms in building, is to ask him to do on the spot what it has taken his race thousands of years to accomplish. He will soon grow weary of the blocks, because he has in his mind no structural content by which to order them; they are a chaos just as he is a chaos. But when he has acquired a certain constructive mastery of his material, when he has, so to speak, learned his trade, then he can build almost any kind of a home, and will busy himself for hours in making plans and carrying them out.

The truth is, when the blocks are given him without any previous constructive training, and he is allowed to build with them, that is not free building at all, for he has no choice between caprice and order. He has to follow his caprice, since he has learned no order. He cannot exercise his inventive genius (as some say), because he has no true knowledge of the material with which he deals. He cannot realize his native bent unless he have some outer mastery of the thing which he is going to inform with himself. Free building can only come after he has learned something of the inner nature of his

blocks. An architect cannot express himself in his art till he knows how to manipulate its forms.

So there should be free building, but in the right place and at the right time. Nay, there should be free association in building among the children of the kindergarden, when they reach the fitting age and have had the proper experience. If left to themselves children show a tendency to free association; boys will associate together for the purpose of building a cave in the hill, or a dam over the brook. On the whole, the larger blocks seem best adapted for such associative plays.

3. It is sometimes objected that the Building Gifts have too much mathematics. Undoubtedly they do show form and number, or geometry and arithmetic, giving the primary concepts of the latter. But this is really their great educative value. The first rise of the child out of the sensuous world into that of mind is through the quantitative process. When he can say of two objects that they are of the same size but of a different form, or that they are of the same form but of a different size, he has begun to compare, order, and measure the material universe. When he can count one, two, three, he has begun to make an abstraction from the whole sensuous world, and name the act as ideal or mental. All scholastic discipline begins with mathematics, which word means (in Greek) primarily *things*

learned as distinct from other things given by the senses.

In this connection we have always to recall ancient Pythagoras, probably the father of pedagogy and the first actual schoolmaster in the Occident, with his love of mathematics — geometry and arithmetic — and the divine meaning which he put into this science. What the old Greek did for grown-up children 2500 years ago, Froebel is doing for little children now. So far indeed do we seem to have progressed.

It may also be well to note here that the thought of Pythagoras is the infantile thought of the race in its first attempts to conceive the essence of things. Says Aristotle (Met. I. 5): The fundamental idea of Pythagoras is "that number is the essence of all things, and that the universe is organized in its manifold determinations by a system of numbers and their relations." Such is the beginning of thinking, which seeks to account for the sensible universe by a supersensible principle, here the mathematical. The school still holds to this curriculum of old Pythagoras, and the school-boy of to-day gets his first lessons in abstract thought by means of numbers. For arithmetic is not only useful in commerce, but its deepest value lies in its being the primary discipline in human culture.

Moreover, one of the ten pairs of opposites which Pythagoras (or the Pythagoreans) adopted

as embracing all things was just the two geometric forms which Froebel has employed in these four Gifts, namely the cube and the oblong. It is strange how this oldest educator, starting to train the infantile race, is re-incarnated in the newest educator, starting to train the infant of the present time. Truly the race-soul and the child-soul have been unfolded and are to be unfolded on the same lines. To each form, the cube and the oblong, Froebel devoted two Gifts, and he intended to devote one more Gift to each (the Seventh and the Eighth). So the ancient Greek educator and the modern German educator join hands across the chasm of centuries, both of them trainers of the infantile spirit by similar methods.

While we are dealing with this subject, we may expand a little another allusion in the preceding remarks, that concerning opposites or contraries. Nothing is better known in Froebel than his law of opposites and their reconciliation. The thought is old Greek, we may say, infantile Greek. We catch the first note of it in Anaximander of Miletus (570–520, B. C.), who had pairs of physical contraries, as Heat and Cold, Moist and Dry, etc. Pythagoras had among his ten pairs, physical, mathematical, and ethical opposites, culminating in the opposition of Good and Evil. Heraclitus employed the same thought in his philosophy, and it reappears in Plato. In fact,

Aristotle, the chief voucher for these early Greek thinkers, says (Met. III. 2) that "they nearly all agree that the essence and the reality of things are made up of opposites," and that the chief doctrine which you can extract from them is that "the beginnings of existence are in contraries."

We hold that it was Froebel's greatness as well his power that in his most mature work he was still an infant, that he as a man remained a child and never "put away childish things," namely, the playthings of children, which he transformed into the first means of human development. Thus he could and did bridge the abyss between the race-soul and the child-soul, opening the spiritual treasure-house of mankind to the little ones, who can now enter there through the simplest and most immediate act of their nature, through play.

Still Froebel's thought is, in essence, infantile, and is seen to be so through its correspondence to the infantile thought of the race when philosophy began to bud in that old Greek epoch. On many sides it has the characteristics of infancy, nay, it has to be so in order to perform its functions in the world. Whereof a good example is found in Froebel's law of opposites, which really belongs to the first stage of philosophic thinking, to the childhood of philosophy.

4. We can trace certain architectural elements

presented in a kind of structural succession in these four Building Gifts.

The Third Gift shows the primary form of the body of the house (without the sloping roof), which is cubical or cuboidal. The same material will inclose more space in the shape of a square (or Cube) than in any other form. This fact can easily be shown with the Bricks of the Fourth Gift. Then the division of the Cube in the Third Gift is a sort of archetype of the division into rooms of the two-story dwelling-house of man. So the Third Gift is a minute foreshadowing of man organizing his home, and advancing from a one-roomed hut to an eight-roomed abode.

The Fourth Gift suggests the inclosure of the building — its wall made of oblong stones, bricks, or pieces of wood. And the form of the house will pass from the square to the oblong or parallelogram, as having more beauty, or as being a more adequate representative of the Ego, since this form has difference within itself, the three dimensions being different. Still the Cube is the more immediate, utilitarian figure, since it holds more room in the same quantity of material than any other figure. The most perfect structure in the world, the Greek temple, presents to the vision almost everywhere the parallelogram.

The Fifth Gift adds triangularity to the building principle, and is most prominently seen in

the roof with its gable. In the Greek temples the triangle is distinctively the pediment, the chief place for sculpturesque figures, which indicate the transition from the architectural or geometric forms to the plastic. By its shape the triangle suggests a rise, culmination, and end; thus the artistic eye of the ancient Greek took it as the hintful frame of a dramatic action represented in statuary.

The Sixth Gift adds the post and the beam in one shape, or the pillar and the architrave, as well as the plinth under the pillar as a foundation. This is, accordingly, the architectural Gift above all others; it shows the inclosure in its Bricks and the entrance into the inclosure, guarded and surrounded by the pillar and beam; the door and the window can now be inserted in the wall with their own forms.

Thus the Building Gifts may be made to reveal the evolution of the house of man till it rises into the temple of his God.

5. Froebel himself has, in an oft-cited passage, pointed out the analogy of the Second (or Originative) Gift with its Ball, Cube, and Cylinder, to the column of Greek architecture with its base (Cube), its shaft (Cylinder), and its capital (Ball or head). So the Second Gift, too, in its way shows its architectural kinship, though its three parts, superposed in the right order, have also a remarkable resemblance to the human

form. Indeed, the Greek column suggests the same resemblance, being a statuesque burden-bearer of the architrave above. The classic bent is pronounced throughout all these Building Gifts.

It should be borne in mind that Froebel at one period of his life devoted himself to architecture, intending to make it his profession. Already at the University of Jena it was one of his courses. He went to Frankfort for the purpose of studying it further, when he was persuaded to give it up for the vocation of the teacher by Dr. Gruner. This was in 1805. Thus for six years or more he had in mind an architectural calling, and he carried his interest in building over into his school.

Moreover Froebel lived in the time of what may be called the Greco-German Renascence of the present century, whose greatest exponent was the poet Goethe. The study of Greek antiquity had a new birth in quite every department of ancient art and culture. Architecture shared in the awaking, and its chief representative was Schinkel, whose works were starting in Berlin during Froebel's stay in that city. Stuart and Revett had gone to Athens in the latter part of the preceding century, had drawn and measured the Parthenon and the Greek temples. The results of their labors began after some years to appear in a great revival of the classic style of architecture, especially in Germany.

In the midst of this revival Froebel lived and at one time thought of becoming an architect. We may well see in these Gifts a tendency of the time, as well as an individual bent, since they lend themselves predominantly to classic forms, which are mainly rectilineal. It is a curious fact that a window which Froebel calls Gothic (reproduced in Seidel's edition of Froebel's writings, II., p. 263) is not Gothic at all, but Greco-Roman, having in it no sign of a curve.

When Froebel passed through Southern Germany on his way to and from Switzerland in the Thirties, he must have again felt the breath of the classic revival, which at that time dominated the Bavarian capital under the direction of the architect Leo Von Klenze, who reproduced there the Propylaea of the Athenian Acropolis, and other classic structures. In those days a Bavarian prince, Otho, had been called to reign over the new Hellenic nation, which had also a new birth after hundreds of years of enslavement. The Teuton had wooed and married the Greek, symbolized by the poet Goethe during this epoch in the Second Part of his greatest poem by the marriage of Faust and Helen. Froebel, too, participated in the spirit of the time, which his genius impelled him to introduce into education, yes, into the education of the little child playing with building blocks. As the two world-educators, Froebel and Pytha-

goras, the modern German and the ancient Greek, seem to be shaking hands across the abysm of time, so the two world-poets, Goethe and Homer, the first and last of their exalted degree, reveal their brotherhood in many a kindred touch of myth and song, notably in the tale of Helen. Yet how different are these two modern men, the educator and the poet, both contemporaries, both sprung of the same people, both the sons of the same mighty spiritual movement of the age! The one of lofty station, conscious, purposeful, the master of all culture, intending through his art to reincarnate his elder Greek brother — that was the poet. The other of humble life, unconscious, instinctively reproducing the soul of the race like a child for the child — that was the educator.

Froebel's Seventh and Eighth Gifts. These are not the present Seventh and Eighth Gifts of the kindergarden (tablets and sticks), but Gifts which Froebel had thought upon and numbered, yet never completed. The Seventh Gift was to be a continuation of the Third and Fifth, starting from a new division of the Cube into sixty-four pieces. The Eighth Gift was to be a continuation of the Fourth and Sixth Gifts, starting from a new division of the Cube into Bricks. Thus the two additional Gifts belong to the rectilinear series of Concrete Magnitudes; as far

as known, they make no transition into the curvilineal. Somehow Froebel's spirit was caught in those geometric right lines and could not extricate itself.

We also note how Froebel (at the time of the *Epistolary Statement*, from which these facts are drawn) conceived his solid Gifts. He indicates four series:—

First series is the Ball, or the First Gift in its manifold application.

Second series is the Ball, Cube, and Cylinder, or the Second Gift.

Third series is made up of the cubical Gifts — Third, Fifth, Seventh.

Fourth series takes the Brick as the starting point of three Gifts — Fourth, Sixth, Eighth.

The idea of the series (*Reihe*) will be taken up by Froebel and applied to the tablets which follow the solid Gifts.

In this account there seems to hover before Froebel's mind, though rather indistinctly, three kinds of division which he applies to his Gifts generally. They separate, first, into large sections (sometimes he calls each of these a play-whole, *Spielganzes*); then these sections he sub-divides into series; finally each of these series is composed of a certain number of play-gifts. The play-gift is the unit of the system.

Such was Froebel's most complete attempt to organize the ever-accumulating materials of his

Gifts. The document from which the above is taken bears no date in Lange's edition (a grave oversight on the part of Lange), but probably belongs somewhere in the middle of the Forties. (See the document in *Lange* II. s. 559. Translated by *Miss Jarvis*, "Education by Development," p. 306.)

Still Froebel does not unfold these divisions into anything like a complete system, nor does he give grounds for his distinctions, at least not with any degree of fullness. It is manifest, however, that he intended a triple set of Gifts for each of the forms, the Cube and the Brick. We may also suppose that there hovered before his mind a threefold movement in each case.

It must be confessed, however, that the Seventh and Eighth Gifts, as above conceived, lie outside of the kindergarden. Even the Fifth and the Sixth Gifts cannot be finished in the kindergarden, but must be carried over into the primary grades, according to the opinion of the best kindergardners.

We can see that the first set of two Gifts (Third and Fourth) take up the Cube and the Brick in the simple or primary division, and thus show an immediate stage; then comes the second set of the same forms (Fifth and Sixth Gifts) which introduce a secondary and more complex division, calling forth many new combinations; finally is the third set of the same forms (the

projected Seventh and Eighth Gifts) which gave still more complicated geometrical figures, and probably introduced crystallization.

In the above cited document Froebel gives a few hints concerning his Seventh Gift, but dismisses curtly his Eighth Gift. In the latter Guillaume has conjectured that there must have been a diagonal division of the Brick in order to get the right scalene triangle of the tablets. We would also like to hazard the suggestion that the Eighth Gift ended in a division which produced the Cube, and thus brought about a return to the beginning of the series. Of course there is no positive ground for any such conjecture, and this return can also be made from the present Sixth Gift, as we have already indicated in treating of the same.

As supplementary to the preceding view of Froebel, we may introduce some statements from another document of his, the letter to Emma Bothmann, dated May 25th, 1852 (*Lange*, II. 509; *Jarvis*, II. 283), written not long before his death. Here he unfolds his use of the fourteen solids or crystal forms, deducing them from the Cube of the Second Gift. But these he will employ not so much in the kindergarden as in the connecting class, which is the bridge over the grand chasm between the kindergarden and the primary grades of the school proper — which is still a problem.

Now it becomes manifest in comparison that the Seventh Gift of the previous (undated) letter has become the fourteen Solids of the present (dated) letter. In each case Froebel goes back to the Cube and develops his forms out of it, so that these (polyhedrons of various kinds, octohedrons, dodecahedrons) seem to spring from the Cube as from their creative germ. It is true that the manner of derivation appears somewhat different in each case, though the procedure of the Seventh Gift is not distinctly told in any detail.

We may conclude from a comparison of these two letters of Froebel, which are several years apart, that he abandoned the Seventh Gift as a part of the kindergarden course, and transferred it with some changes doubtless, into the connecting class, where it appears in his last word upon the subject. Köhler thinks that these fourteen solids have still a future in the Public School; this may be so, but a discussion of the subject lies outside the horizon of the present book. It is important, however, for the student to keep in mind the difference in time as well as in development of Froebel's thought between the two above mentioned documents, as Guillaume has somewhat confused them in the only presentation (see his statement in Barnard's volume on *Kindergarden and Child Culture*) which has been hitherto accessible to the English-speaking world.

In this connection we may cite a passage in which Froebel speaks of his work, taken from the Baroness Marenholtz von Bülow's *Erinnerungen an F. Froebel, s. 149:* "Their simplicity alone makes the Building Gifts adapted to the instruction of children. I myself once intended to continue the regular (*gesetzlich*) division of them still further, but *I had to recognize this as a mistake*. Further division makes the regular procedure impossible" (see the passage in Mrs. Mann's translation of the *Reminiscences of Froebel*, p. 230).

This open confession of a mistake which Froebel here makes, refers, in our opinion, to the Seventh and Eighth Gifts. Spoken in connection with the Building Gifts, it indicates the change in Froebel's mind, which we have above indicated. The date suggests the same fact, as the reported conversation took place in 1851, the year before Froebel's death.

We shall continue the citation of the above passage, as it contains some of Froebel's latest ideas about the Building Gifts: "For further diversification of material we can use together the four Building Gifts. *The straight line must be still retained in the division.* The older pupils can diversify the material according to their needs by their own invention, though this ceases to be a *methodical* means of instruction."

Thus Froebel had the conception of free build-

ing, which is claimed for these times of ours. Yet it was to come after instruction or prescribed building, not before — which is the right way. But how tenaciously he clings to his straight line!

Still more from the same passage: "It is, however, permissible to offer to the more advanced pupil building-blocks which represent the different styles of architecture of peoples and of ages, but that does not belong in my kindergarden, which can only use what is elementary." To our mind this last expression is but another indication how completely even simple curvilineal forms lay outside of Froebel's horizon. The Ball and Cylinder were quite enough for him in the matter of curves.

Still we must note with interest that he refused to crystallographize his kindergarden through the Seventh and Eighth Gifts, and of his own accord left them out of his system, acknowledging his mistake.

Again the reflection is forced upon us that Froebel's Gifts were not complete at the start, but were a great development extending through many years, especially of the later portion of his life and we must further see that they were not left in a state of completion by the author himself, who was unfolding them in various directions at the time of his death. Still the main lines of his Gifts are laid down in all distinctness, and are to be wrought out to their true results

by those who wish to develop his system in accord with its spirit.

In fact Froebel's entire life was a genetic development from its beginning, and this inner nature of himself he projected into his kindergarden. His biography is to be conceived as genetic and thus it becomes the best commentary on his works. It is a great mistake to swallow everything that Froebel has written without asking where the given statement belongs in his development.

And now we proceed to outline briefly an account of that portion of Froebel's Gifts which he never completed and which he apparently was unable to complete through force of nature, but which the kindergarden organism, unfolding and working in his spirit, has to complete in the right movement of its growth.

2. *Curvilineal Series.* This corresponds to the rectilineal series previously considered and is the second head under the Gifts of Concrete Magnitude. It is the separative stage in contrast with the straight line which is the immediate going forward of the point into the line, whereas the curve shows the line changing direction at every point. Thus the curvilineal introduces separation into the rectilineal at every possible turn, yet this separative act is continuous in a line. The result is curvature.

Still further, the central point was one with the line in the rectilineal, but in the curvilineal it becomes separated and begins to take its own independent position. The curve projects its central point, from which in reality it is determined.

Thus the central point is being separated and becoming explicit in the curve, while in the straight line it was in immediate, unseparated unity with the line. Here we have a foreshadowing of two elements of Abstract Magnitude — Point and Line — while the rectilineal has only one of these elements — the Line. In such fashion we see the twofold nature of the present sphere.

This curve in its innermost nature is a return out of the Cube (the derived) toward the Sphere (the original). This going from the straight to the round is a deepening of the rectilineal toward its source, a kind of a search for its genetic fountain-head. But in such a movement the rectilineal will pass through an infinitude of shapes on its way, all sorts of many-sided figures with division moving more and more toward the curve. The active right line, as a thought, goes on and on, in a state of seeking yet never attaining; it reaches out toward infinity, yet cannot get back to itself, and so be complete or self-returning.

But when the rectilineal begins to break loose

from itself and turn at every point, and also to require an inner determining point, we see a double separation, without and within, by which it makes the transition to the curvilineal.

Language recalls and perpetuates the spiritual analogy between these two kinds of lines, which are specially applicable to all sorts of conduct and action. We may say that the right line represents justice and the unswerving law; the right line is right (*rectum* and *recht*). The right line means *straightforwardness* in English, *rectitudo* in Latin, *Gerechtigkeit* in German. There can be no doubt that the rectilineal cultivates as well as expresses these elements of character in the human being. Hence it has its place in education, and specially in the education of the child, who being at the start the possibility of all lines, must be straightened out, or put into a straight line in the beginning of his career.

But these very utterances about the rectilineal as educative indicate its limitation, and there rises the inner protest, and the demand for the opposite. The curvilineal has yielding, conciliation, forgiveness; it has mercy, in contrast with the unbending justice of the rectilineal. The curve bends, relents, turns back, repents; it is placable. Achilles in his wrath was rectilineal and in one point right; in his reconciliation he was curvilineal, and in all points right. To be sure, the bending or curved element in man's

nature has its limitations also, sometimes he must not yield. Thus he must have both, the rectilineal and the curvilineal, in harmony.

Human speech has thus seized upon these two kinds of lines to express conduct, especially ethical conduct. And as external objects, they still remain educative. In the Greek world stoical morality was rectilineal, epicurean curvilineal; both in the end were carried to excess. The Ethics of Kant are more rectilineal, often too much so, the Ethics of Bentham more curvilineal, often too much so. It may be said that Northern Europe, the Teutonic peoples, have in general a tendency toward the rectilineal in manners, art, literature, morals, and perchance religion. On the other hand Southern Europe of today, the Romanic peoples, have a decided leaning toward the curvilineal, which shows itself in their outer behavior as well as in their spiritual productions. Froebel himself was distinguished for his directness (*Gradheit*, straightness), and his spirit was more rectilineal than curvilineal. This innate bent was cultivated by his study of crystallography, which shows nature in her rectilineal mood, shooting into right lines, and also by his study of architecture, which in his time was mainly that of the Greco-German renascence, and largely rectilineal. Of course his mathematical studies, surveying, geometry, etc., helped along in the same direction. Thus

we may see why his Gifts are so dominantly rectilineal.

Accordingly we hold that these two kinds of lines, furnishing as they do the staple of human speech in regard to matters right and wrong, and having their analogy not only to the moral but also to the intellectual nature of man, are deeply educative; nay they have helped to educate the human race, and must still help to educate the child, who has, in general, to travel the same road of discipline that his species has traveled. He gets the very basis of all moral distinctions in speech from the line, which distinctions are re-created by the child in play.

And now we have to grapple with the astonishing fact that Froebel has almost wholly omitted from his Gifts the curvilineal, and put all his stress upon the rectilineal. To such an omission there can be at last but one response: the gap must be filled. The kindergarden world must work toward the completion of the kindergarden organism, else it will stop growing, and that means death. The main reasons why there should be a curvilineal series of Gifts in correspondence with the rectilineal series, may be here touched upon.

(*a.*) It is necessary for completeness of Derivation. The Sphere and the Cylinder, though genetic in themselves and belonging to the originative (Second) Gift, have no representatives

among the Building Gifts. Here lies an offense against the very important maxim of Froebel himself, that all the material is to be used in construction and not left lying around in a loose way. As in a single Gift, so in the totality of Gifts, no fragments should be left unutilized. Moreover, if one piece be barren, say the Cylinder, there is a denial of the very principle of genetic development. The child himself will feel the gap, and show a vague longing for completeness; sometimes he will express it in a naive word.

(*b.*) It is necessary for symmetry in the total system of Gifts. When we come to the Surfaces and Lines in Abstract Magnitude, which must be derived from forms of Concrete Magnitude, we shall find curvilineal shapes in the tablets and in the rings; whence did they originate? We may refer them back to the Cylinder, but the intervening stage has dropped out. This violates the symmetry of the Gifts.

(*c.*) It is necessary on artistic grounds, as we shall see later. Art must have the curvilineal; architecture, the most rectilineal of all the Fine Arts, cannot do without the arch in any complete development of itself, and the arch is curvilineal.

(*d.*) It is necessary to ethical proportion in the human soul, as we have already set forth. There can be an excess of the rectilineal in the conduct of life, though it certainly forms an indispensable part thereof.

(*e.*) It is necessary for scientific completeness, since geometry demands curves as well as right lines, and certainly nature has both. Geometry, in fact, starts with the rectilineal, and moves into the curvilineal by division of itself till it quite reaches the Point. That movement we may follow in the unfolding of these Gifts.

(*f.*) But the main thing, the thing above all other things is, that the curvilineal element is necessary for the educative completeness of the training of the child. This conclusion follows from the statements just made. Genetically incomplete, artistically incomplete, morally incomplete, scientifically incomplete — are any more reasons needed for this new curvilineal Gift (or Gifts)?

Several questions now rise with emphasis: How shall this rectilineal Gift be constructed? Of what pieces shall it be composed? What forms can be made of it when its pieces are variously combined? Let it be said here that the author of this book does not pretend to be able to answer adequately these questions. The curvilineal Gift (or series) remains to be constructed by some skillful kindergardner who is able to think with the hand like Froebel himself. Such ability lies outside of the sphere of the present writer.

Still we may give a suggestion or two, which, however, will have to be confirmed by practice.

The main addition must be found in the arch, one of the basic principles of architecture. Here we may note three shapes which form a process together, all of them derived from the Sphere or more directly from the Cylinder of the Second Gift.

(1.) The most immediate derivation from the Cylinder by division is when it is halved and quartered lengthwise, with a cross section in the middle. Thus the three planes are passed through the Cylinder at right angles to one another as through the Sphere and the Cube. If the division into eighths be made (or modeled in clay), these small slanting pieces will suggest the wedge-shaped stones of the arch, technically called voussoirs.

Such a division of the solid Cylinder shows the arc, the half and quarter circle on the outside, or the convex principle of the curve. Next in order, then, we are to see the concave principle unfold out of the Cylinder. But this demands a different division of the Cylinder, the concentric, or the Cylinder within the Cylinder, which new shape (or shapes) will be divided by the three intersecting planes.

(2.) The result of this division which should be performed thrice concentrically, making three hollow Cylinders, one within the other, will be the semi-circular arch of three sizes, and of two different lengths, or more, according to the cross

cuts. Also there will be the quarter arches, or even the eighths.

Thus we have the concave and the convex principles of the curvilineal form, as it is seen outside and inside. The hollowness or concavity of the arch constitutes its great importance; beneath it flow rivers, while over it go roads, heavy vehicles, trains, etc. The arch is perhaps the most useful of all building devices; it will span a large space, and bear up under the heaviest burden if well made. The child should build his arch in the kindergarden and learn something of its character, which is indeed suggestive.

(3.) There are many ways of uniting the preceding forms. The convex and the concave forms alongside of each other in succession produce the undulatory series of curves, a line which is rhythmic in its suggestion. Many decorative figures can be brought to light — rosettes, borders, trefoils, etc. Then these curvilineal forms, concave and convex, can be united with the rectilineal in many a combination suggesting architecture, of which we shall speak later.

So we would interweave into these Gifts as well as into the training of the child a curvilineal element to counterbalance the one-sided rectilineal element of the preceding four Gifts (Third to Sixth inclusive). Already the Cylinder of the Second Gift is such a union of the round and the straight, and the Greek column (soon to be men-

tioned) shows the same union in a number of ways.

At this point we must render homage to the work of Hermann Goldammer, who, of all the successors of Froebel, seems to have felt most keenly the above-mentioned defect in the Gifts, and to have made the most earnest beginning toward its correction. Goldammer, in his Kindergarden Manual (*Gifts*, p. 111) has given us the result of his labor in what he calls "Gift 5 B," which he adds as a kind of appendage to the Third and Fifth Gifts. He also declares that he has tried to add a similar appendage to the Fourth and Sixth Gifts, but that, after much effort, he has not succeeded to his own satisfaction.

We think that Goldammer has made a very solid contribution to the Gifts in his work, but it should be much extended. He has only one kind of arch, whereas there should be at least three different sizes, for the sake of variety and contrast. Thus the child can have a large arch and a small arch in his structures, one for his door and one for his window, and still another one, whereby he can produce the effect of magnitude by means of the contrasting sizes. As already stated, these various kinds of arches can be derived from the concentric Cylinder. The arch, being the most important structural element of the curvilineal, or, for that matter, of the whole building series, deserves to be quite fully

developed for the child, even though the time of the straight-lined Gifts be somewhat shortened.

We think, too, that it is a mistake on Goldammer's part to make the curvilineal forms a mere appendage to the rectilineal Gifts. We are inclined to see in this the ground of his failure to proceed in his task. At any rate, the curvilineal principle should be co-equal with the rectilineal, and still further, should be united with the same in the total process of the Gifts of Concrete Magnitude, of which it is the second stage. Thus the curved form becomes an integral part of the entire movement, and not a tail tacked on the outside of something else.

Still we feel we must render due honor to Goldammer, our predecessor in this suggested improvement, who actually constructed something for its furthering — a merit to which we can lay no claim.

There are a few scattered hints in Froebel's writings, showing that he felt the need of this curvilineal element in his Gifts; still, when he proposed adding two more, the Seventh and the Eighth, he again gave way to his rectilineal bent, and fell back once more upon the Cube and the Brick.

3. *Unification of the two series.* The curvilineal element cannot stay alone; if it does, it runs the danger of getting crooked. The curve, too, must be put under the law, the right, and the

right-lined; capricious crookedness is not the beautiful artistically, nor the good morally. The rhythmic undulations of the sea move up and down on a right line, eternally coming and going; order and symmetry suggest a rectilineal power controlling caprice within and chaos without; we are to straighten devious conduct both in word and in act. The curve with its versatility, being able to turn at every point, has the temptation of becoming lawless, or purely capricious, whirling any whither. Of itself it calls for the rule, literally and metaphorically, which is straight-lined, but which, taken by itself, is apt to get rigid and remorseless, not to say, fixed and crystallized.

So we trace in the present stage a few of the analogies which are real and also educative, since the human mind has embodied them in its thinking and in its speaking. Just for this reason they are to be taken up by the child, are to be re-thought and re-spoken by him, in order to reach down to the fundamental concepts of his race at their very source. In these Gifts they are played by the child, always attended by the budding word, which is now born anew in the child-soul, as it was primordially in the race-soul.

The child naturally builds; in fact every organism must build, every animal has this instinct — the beaver, bee, bird; in a sense the tree may be said to build. This building instinct

is deeply connected with the generative impulse; every animate object constructs in some fashion a home for itself and its young, the abode of the family. The house is originally constructed not so much for the individual as for the species. The child in building is giving utterance to his domestic and social instinct, rather than to a selfish one, hence it should be cultivated from the very start. He will reproduce his own home, probably, first of all; at any rate he will build himself into an environing structure of some sort.

Here enters especially the work of the kindergardner, taking advantage of this building instinct of the child. Instead of his own petty, narrow environment, he can be made to build in outline the whole architectural movement of mankind. The instrumentalities already elaborated in the two series, rectilineal and curvilineal, enable him to reproduce the larger and leading features of the chief edifices of the world. Thus he recreates in himself the architectonic soul of the ages, and makes it his own; what man has constructed outwardly, he will reconstruct inwardly, for it all lies simmering, bubbling, struggling within him.

Of course this inner reconstruction of great architecture is awakened in him through his outer reproducing of it with his little building blocks.

A brief survey of this architectural movement of time, which can be re-created in the kinder-

garden for unfolding the constructive spirit of the child, may be here given.

(1.) We shall begin with a notice of Greek architecture, which is mainly rectilineal, its ground-form being that of the parallelogram, as already stated, which determines the most of the outlines of the Greek temple. The whole entablature (excluding the pediment) is a horizontal right line, and is the supported; the colonnade has the vertical right line, and represents the supporting; the two lines meet at many points, forming rectangular figures, up and down, on end (between columns), on the side (the front of the temple), flat on the back (the floor or the stylobat). Even the ceiling has quadrangular decorations (cassettes). The triangle, still right-lined, appears in the pediment. The whole temple is a parallelopipedon crowned by a triangular prism (obtuse-angled isosceles).

It is at once apparent how Froebel's building blocks show the fundamental forms of Greek architecture, which is so strongly rectilineal and rectangular. Out of them can be built a suggestive miniature of the Parthenon, the most beautiful structure in the world. It is a great mistake to say that they have no artistic element in them, as some objectors have affirmed.

Still Greek architecture could not wholly dispense with the curvilinear element, which is nobly represented in the column. This is really

a harmonious unity of the straight and the round; it is a decided vertical line on the one hand, in strong contrast with the horizontal line of the architrave (or cross-beam) which it supports. Still the rotundity of the column is what draws and fascinates the eye. It is a significant thought that the supporting principle should be round, while the supported is right-lined and right-angled — the one erect, the other prostrate.

The Greek architect, however, was not satisfied with the simple, monotonous roundness of his column. So he fluted it, cutting its surface into straight perpendicular lines, thus emphasizing its verticalism. But he also added what may be called the concave straight line, which is the fluting proper. In this way he gave to his column three kinds of vertical lines, all carrying the eye upwards — a simple line or edge, a concave line, and the total columnar line, which is in effect convex.

Thus the artistic Greek added the variety of thought, yea of the Psychosis itself to his column, thereby involving and interesting the Ego of the beholder. Of course such details cannot be given in the kindergarden, but the incipient creative principle of them is there, and the kindergardner should know whither her constructive work is leading the child, namely to the grand architectural treasures of the world.

The Greek column shows already a turn toward

the curvilineal; this tendency is seen unfolding more and more in the development of the so-called orders — Doric, Ionic, Corinthian — the last of which breaks out into curved foliage in its capital. The column with its silent voice of stone at last calls for the arch, which appears with Rome.

(2.) We may conceive of the arch as arising out of the Greek column and the architrave; two columns bend together and unite with the architrave which becomes the keystone. The vertical and the horizontal, giving up their rigidity and turning at every point, are transformed into the circular; or the rectilineal dividing within itself, changes direction and goes over into the curvilineal. Thus the arch is its own column and its own architrave; it unites what is separated in Greek architecture, yet is itself a curve, that is, it separates from itself at every point, and so we may consider it in this sense as belonging to the separative stage.

The arch, though not invented by Rome, was adopted by it as its fundamental constructive form. It is, indeed, a type of Rome, and was so regarded by the Romans themselves, who represented their own spirit in the Triumphal Arch more adequately and originally than in any work of art. The arch, closely wedged together, can bear the burden of a world upon its back. Not so the architrave of a Greek temple, which

will break under too great a weight, even under its own weight, unless duly supported beneath. The arch overcanopies space indefinitely, and protects what is under it — another suggestion of Rome's spirit in the world's history. But the Greek temple cannot be pushed beyond a certain size; the Parthenon is about the limit. Hadrian's temple of Zeus at Athens exceeds the limit, it was colossal but ugly, showing what Greek art with its moderation became in Roman hands.

We have already intimated that the Romans were not the first people to employ the arch, but they were the first to realize fully its possibilities. There is no doubt that the Assyrians and the Egyptians had used the arch before even the founding of Rome. In the ruins of the ancient Assyrian palace at Khorsabad, we find a very complete application of the semi-circular arch, going back to the reign of King Sargon in the eighth century, B. C. The Egyptians used the arch for the vaulting of drains and of tombs at least 1000 B. C. The Etruscans, often supposed to be of Oriental descent, knew the arch, and it was doubtless they who built the Cloaca Maxima at Rome, an arched sewer which is still perfect and in use, and whose round mouth can be looked into by the curious tourist, where it opens into the Tiber.

But the arch, when it rises into the realm of

art and becomes truly architectural, seems to demand a setting of right lines; it shows too much of the naked utility to be beautiful in itself. The Roman Triumphal Arch, already alluded to, had to be placed in the framework of Greek column and cross-beam, the whole taking the shape of a parallelogram in outline.

(3.) Thus the union of the rectilineal and the curvilineal begins to take place at Rome in the days of her glory. She seized upon Greek beauty to adorn Roman strength, and so we often see that the Greek column and entablature at Rome were purely decorative, and not structural. Thereby, however, Greek art became an external matter, an outside ornament put on by the conqueror of the world for self-glorification. Very common in Roman architecture is the conjunction of the arch and wall with the Greek column and entablature; it is the arch and the wall that are doing the work of supporting, while the column (usually the Corinthian in full dress) stands by and looks on, a kind of servant in livery.

But this external conjunction of the curvilineal and rectilineal of Roman and Greek structural forms, is to become internal, intergrown in an organic unity of the two elements. This is the work of Christianity, which is to unite the Greco-Roman world by an inner bond, which will manifest itself not only in creed and doctrine, but also in buildings, especially in the church,

the home of worship and faith. Christian architecture will join the column and the arch in a new marriage, which will assume many shapes. Already the Basilica gives indications which are developed in the Romanesque and the Gothic. Finally the Renascence will return to Greece and Rome and re-embody classic architectural forms, yet with the experience of medieval Christendom.

We have given this brief survey of the architectural movement of the European race in order to bring out the interplay between the rectilineal and the curvilineal, and still further, to indicate that the child can produce that movement in child-like outline by means of his play-gifts, if these be made complete by the addition of the round forms. The arch and the rectilineal parallelogram (composed of two columns and architrave) are the two main elements in the development of architecture; both can certainly be given to the child, who will combine them into many structural forms and ornaments, which have their counterparts in the genetic history of building.

Though there have been repeated attempts to develop more fully the architectural forms of Froebel's Building Gifts, none of them have been apparently taken up into the kindergarden organism. In Froebel's time such attempts were made, though he seems not to have adopted them. (See translation from the "Reminiscences" on a

preceding page. Dr. Georgens' building blocks, by means of which "architectural forms of the Gothic and Italian style" can be constructed, are only known to us through the allusions in a note to Hanschmann's *Froebel's Leben*, s. 397.)

Here, then, we bring to a conclusion the Gifts of Concrete Magnitude, in which we have derivation by external division, whose parts have remained solid, with Plane, Edge, Corner (Surface, Line, Point) present in material connection, unseparated. But now these are to be separated from the outside of the solid Gifts, and considered as they are in themselves, or, more deeply, they are to be extracted from the inside of the solid Sphere and are to be held asunder and are to be regarded in their own right. Such a derivation is now internal, made by the Ego for the Ego, getting rid, first of one dimension of matter, then of two, and finally of all. This process is what we are next to study.

B. Gifts of Abstract Magnitude. These are the Surface, Line, and Point, and are derived from the Gifts of Concrete Magnitude by abstraction, by separation from the solid with its three dimensions. We are now to go through a series of magnitudes which have successively two dimensions, one, and finally none at all.

In the preceding Gifts already the child has

seen, handled and spoken of side, edge, and corner, or possibly of Surface, Line, and Point. They are real, sensuous, material in the Cube and other rectilineal and curvilineal figures; but in the present stage of the Gifts they are abstract, non-material, ideal. They are to be grasped by mind as they are in themselves, and not as connected with the solid. Thus we are made conscious of them as the pure elements of form, being separated from the material object in which they were, and given a name in their own right. Thereby they become tools of the mind, with which it re-shapes and re-constructs the world of matter.

It is evident, however, that the little child is not equal to this power of abstraction, which in the educative process properly belongs to the youth who is beginning the study of Geometry. Still the child is not wholly to lose such a training in the present age; if he cannot yet think apart from the sensuous object, then the sensuous object is to be brought to him laden with its thought. The Surface, Line, and Point must be materialized for him, in order that he may begin his mastery of the external world of Nature.

With this purpose in mind Froebel comes to him, having unfolded these Gifts of Abstract Magnitude, which may be said to be a re-embodiment or re-incarnation of the pure geometrical elements which underlie all material forms. Such

is the fundamental purpose of the present series of Gifts.

The science of Geometry, therefore, has gone in advance of these Gifts, which, however, are to bring it, in its basic principles, to the child in the child's own way. The old Greek philosophers cultivated this science specially; they did not begin it, but certainly gave it a great development. They quite completed the abstraction of geometrical concepts from concrete matter, and thus ideally mastered the same. The Geometry of Euclid has been the text-book of the ages since its writing, and it still remains a standard work. From Pythagoras down it may be said that all the great teachers of Hellas regarded this abstraction from the sensuous world as the primary discipline for the soul both intellectually and morally.

Geometry is a continuous evolution unfolding along with the race. From indications of the monuments, the Egyptians proved the so-called Pythagorean proposition by means of square blocks or tablets — a method which the kindergardner to-day uses or can use with her children. It may be interesting to note, in regard to this proposition, that the two kinds of proof are the sensuous and the abstract, the latter being purely geometric, and yet derived from the former. The kindergarden in the person of the child, goes back to the race's beginning, and re-embodies the abstraction in its primordial concrete shape.

(This Pythagorean proposition is the well-known one: The square of the hypothenuse equals the sum of the squares of the other two sides.)

Here, then, we can observe the process which is the characteristic and life-giving movement of the Gifts of Abstract Magnitude: first is the material world as taken up by the senses in all its fullness and immediacy; second is the separation or the abstraction of these fundamental geometric forms, the Surface, the Line, the Point; third is the return of these forms to the sense-world, in which they are re-bodied for the child. Such is the threefold act of mind (the Psychosis) which lies at the basis of these Gifts of Abstract Magnitude, and gives to them their fundamental distinction, organizing them in accord with the movement of the child's Ego itself.

It will be worth while to note the same process in other fields of man's spiritual activity. Let us watch it in Ethics. First is the concrete act, let us say, of the just man; second is the abstraction of the essence of the act, and then the giving it a name, justice, which is no longer individual, but universal; third is the re-embodiment of this abstract concept in the conduct of men, which is the return to the first stage. But what is gained by this procedure? That which belonged to the one, now belongs or may belong to all; not one man alone is to be just, but all men are to participate in justice, which thus

becomes a virtue and is impartable, teachable. So it is with the other virtues, which are abstractions from real life in the first place; the brave, the temperate, the wise, the good man calls forth courage, temperance, wisdom, goodness, and, moreover, starts the science of Ethics, whose function is to impart these virtues to all, so that every human being can re-incarnate them in his own life.

It was, therefore, the grandest epoch in the moral history of man, when he began to separate virtue from its immediate, instinctive unity in conduct and to look at it abstractly, as it is in itself. The grandest epoch, we say, for that which hitherto had been the virtuous property of one hero, or of one good man, began to be the property of all, universal, just through this might of abstraction. Specially the time of the old Greek Philosophers was such an epoch, the culmination of which was reached in Socrates, and he transmitted the work to the thinkers who came after him, and who organized ethical science substantially as it exists to-day.

Of interest to us in the present connection is the fact that these same Greek thinkers at the same time were developing the science of Geometry, which is an abstraction from the sense-world primarily in order to get possession of the same. In like manner the science of Ethics is an abstraction from the immediate sensuous deed in order

to find out the true nature thereof and then to control the same. Both sciences have, therefore, a common character and often have had promoters in common. Pythagoras, also a moralist, is said to have sacrificed a hecatomb in his joy and thanksgiving to the Gods when he discovered the geometric proposition which goes still by his name. Plato's love of Geometry is celebrated in his works, and he is said to have made it a kind of examination test for entrance to his Academy. It indeed tallies with his love of the Ethical and of the Ideal generally, which insisted so strongly upon the subordination of the sensuous and material elements in man and nature.

And here it ought to be noticed that the re-embodiment of the Ethical in the concrete form of life is likewise a part of the work of the kindergarden. The story, the fairy-tale, the fable is a kind of re-incarnation of some good, or of some virtue, which the child cannot take in its abstract form. The great end of the story, indeed of all education, is the moral one, and unless the story has a moral content, it is not educative. To be sure, we are not to moralize to children, or at least very little; to moralize is to present in abstract form that which the story ought to give in concrete. To introduce moralizing into the story is, therefore, a kind of perversion, which the child himself often resents. But we must not infer from this, as some have

done, that the story is to have no moral content. It ought to have always, still this moral content is to be completely incarnated for the child, though the kindergardner herself should know the abstract meaning. Indeed it is through such knowledge that she can rightly choose her stories, rejecting those which are not educative or imperfectly so, and selecting those which she not only feels but sees to be genuinely ethical, and also in a form which goes home to the child.

So we bring to light the harmony between the ethical and the geometrical in the kindergarden of to-day, which harmony, however, was strongly brought out long ago by the ancient Greek sages. Note again that the Surface, Line, and Point do not exist in nature, but are abstractions made by the mind from the concrete object, and hence an ideal, pure product of the brain. Now the science of these ideal forms of Matter or of Space is Geometry, which is, therefore, a great trainer of the spirit in the work of freeing itself from sensuous dependence on the material world, creating its own pure forms, and hence so praised by Plato as a discipline, both philosophical and ethical.

But the sciences of Ethics and Geometry in their abstract shape correspond to the needs of the more mature or more developed mind. We must repeat, that for the child they must be re-embodied, which work is specially Froebel's.

And a mighty work it is, one of the greatest in all education. It was Froebel who not only said that the child must not lose his childhood, but who created the instrumentalities so that he should not lose it, but should have his share in these two grand disciplines (as well as others) of his race. The Gifts of which we are treating are just these instrumentalities in one direction.

The subject is so rich and deeply significant that we may be permitted to employ one more illustration, this time taken from theology. The immediate embodiment of Christian life was in that of Christ — his deeds, words, conduct in general. Such was the concrete incarnation of all the Christian virtues and doctrines; then began the abstraction of them, together with their designation in creed and dogma. St. Paul began already to theologize the Christ-life through his Greek culture, and the process kept going on for more than a thousand years, culminating in the Church's greatest theologian, Thomas Aquinas. And this process has not yet stopped by any means, cannot stop, and, we think, ought not to stop. Still, the grand object of creed, dogma, confession of faith, and of the vast ecclesiastical organism from top to bottom is to re-incarnate that Christ-life in every Christian, nay, in every human being, if possible. The people cannot rest in abstract doctrine, they must have it re-embodied and brought home to their very senses,

hence Christian Art — Painting, Sculpture, Music. Re-embodied also in word, hence among other things the wonderful Christian Mythus. Both theological and mythical was the spirit of medieval Christendom, which had a grand new incarnation in a poet and his works, none other than Dante Alighieri, who was himself both — a theologian and more deeply still, a genuine myth-maker.

The student may now see that Froebel's Gifts of Abstract Magnitude are not an isolated thing, not some whimsical notion of their inventor, but are connected with the great educative movement of mankind. They have their intimate kinship with some of the deepest spiritual facts in the unfolding of the race. An important element in all education they are, showing both the power and the meaning of abstraction, whereby that which was before sensuous, particular, special, becomes ideal, universal, for all. And now, in the fullness of time, the little child is to be brought to share in this training.

In the very term abstraction lurks the thought of separation, and thus it allies itself in general with the second or separative stage of the Ego, to which we have assigned already the Gifts of Abstract Magnitude. Those elements — Surface, Line, Point — which previously have been more or less implicit, have now become completely explicit, separated and regarded as they

are in themselves. They had a potential existence at the very beginning in the Ball, but they are to be brought out of their hiding-place and are to be made actual to the senses of the child.

Still further, these Gifts of Abstract Magnitude, though they be the second stage of the Ego in the movement of what we have called the Derived Gifts, bear in themselves the total process of the Ego in its three stages. Here the student must seize and apply that most important psychologic fact which lies in all true organizing of anything: that which is the single stage of the Psychosis in one relation, shows the total triple movement of the Psychosis in another relation. For the Ego is to grasp one phase of itself, but just in the act of grasping a part of itself, it must be its whole self, and thus reveal its total movement.

The Gifts of Abstract Magnitude are now to be seen going through the three stages of their process, which may be stated in advance as follows:—

I. Simple separation — or the stage of immediate abstraction from the solids of the Gifts of Abstract Magnitude. These abstract elements will appear as simply separated, each by itself.

1. The Surface.
2. The Line.
3. The Point.

II. The separative movement — the separation is carried not only to the Point, but into the Point itself, which thus becomes self-separating, and thereby begins a movement out of itself, a projection of itself, which reveals its generative character.

1. The Point as self-separating.
2. From Point to Line.
3. From Line to Surface.

III. The return to the Surface producing the solid — the movement out of Abstract to Concrete Magnitude; the Surface generates the solid from which it was once separated, and so we come back to the Cube and its derivations.

Herein it is manifest that the cycle of the Gifts of Abstract Magnitude has completed itself, having passed through those stages which we have designated above and which correspond to the Psychosis. Thus it seems to be sprung of the Ego, and is for the Ego — for the Ego of the child, calling it forth through its innermost nature, which also has implicit within itself just this psychical movement. Such is the presupposition in all education: the Ego receiving and unfolding must be in a deep correspondence with the thing received and unfolded.

It may be here remarked that the transition from solid to surface has its significant place in the Fine Arts. Sculpture keeps the solid in

its length, breadth, and thickness; while Painting with Drawing passes to the surface. Architecture in one sense is a surface built in the form of a solid, which is, therefore, hollow. More will be said on this head under the Occupations, in Modeling and Drawing.

In general, we shall observe that the Gifts of Abstract Magnitude — Surface, Line, and Point — begin to approach closely to the Occupations, whose principle (that of reproduction) they often manifest. Still we are in the realm of external combination in reproducing, for instance, a triangle by the laying of sticks, and so this whole division properly belongs to the Gifts.

I. Simple or External Separation. — First, then, we shall consider these Abstract Magnitudes in a state of simple separation, just as they are taken from their respective solids, each being considered by itself. Of course, in the Gifts now presented, they are to be re-embodied, not retained in their geometric abstraction.

In an implicit way they have been embodied previously. We may regard the Surface embodied as a small brick or even cube; the Line materialized may be a small cylinder or column; the Point is a little round ball. Such suggestions we have had hitherto; but the great fact now is the re-embodiment of these abstract elements.

The numbering of the Gifts of Abstract Magnitude has been and still is unsettled. Froebel did not number them, and his successors have varied from one another. Still no great confusion has resulted, chiefly because the divisions of the subject in themselves are so definite — Surface, Line, Point. It would be well, however, to have a fixed numbering, if possible. No individual of course can determine this, the great kindergarden organism in some corporate capacity ought to have the leading word in such a matter.

THE SURFACE.

This is the first, most immediate abstraction from the concrete object, two of whose dimensions (length and breadth) it still retains. That is, the solid loses one dimension and becomes surface, which is through the Ego and for the Ego — ideal.

As a Gift it is usually numbered the Seventh in the regular kindergarden series, though it is not Froebel's Seventh Gift, as we have already seen. Its embodied forms are known under the name of tablets — light thin objects of varied contour, rectilineal, curvilineal, and also spherical in some of the concentric shapes; and they may be of different sizes. It is the Gift of the Tablets, which are the different surfaces, seen first in the Gifts of Concrete Magnitude, but now ideally separated and re-materialized. We shall, therefore, apply the term tablet even to a spherical surface, though usage generally applies it to a flat surface, of straight or round outline.

The present Gift, accordingly, represents the first stage of Abstract Magnitude — the abstraction of surface from the solid. These forms, we repeat, do not exist in nature, but are separated

from the concrete objects of nature by the mind, whose concepts they are; hence they are ideal.

Yet they are the means by which the mind, and hence the man, gets hold of nature, controls it and uses it for his own purposes. The knowledge of surface is a part of the science of Geometry, which is now to be brought down to the little child by a re-embodiment of the abstraction in its own right; that is, we are to have an object which represents surface alone. Thus we behold the movement which lies at the basis of all these Gifts of Abstract Magnitude: first, the immediate thing of nature as taken up by the senses; secondly, the separation and the seizing of the concept of Abstract Magnitude, here specially of the surface; thirdly, the fresh embodiment or materialization of this abstraction, which thus takes on, so to speak, its own body.

The surface lies nearer to the solid than the point or the line, having two out of three dimensions of the solid. Hence it comes first in the order of the senses, though not in the strictly logical order, which, through separation, takes at once a leap to the opposite, the point. Still we shall have to evolve the point first, then we can employ it; so we start with the surface.

The present Gift, as we have it, always causes trouble to the student. It has great difficulties; in fact, it shows an inner dissonance, as at present taught and manipulated, which make it a kind of

terror to the kindergardner. It seems to have both too much or too little, easily derived in part, and in part difficult to derive; what shall be done with it? Then the naming and numbering of it have caused new confusion; on the whole, it is the most chaotic, disordered Gift in the whole kindergarden series. Can a fresh step be made toward the ordering of it?

Let us first take a survey of its material. This is usually placed before us in five or seven portions each of which has its own separate box.

1. The quadrangular or the square tablet, derived directly from the Cube. Thus the child has the square inch embodied, the unit of measure for all surfaces.

2. First triangular tablet, or the right-angled isosceles triangle embodied. It is produced directly from the preceding square by a diagonal line, or taken from the end-side of the triangular prism of the Fifth Gift. Note that triangularity in surface now enters.

3. The equilateral triangle is usually introduced next, being called the simplest and most typical of all triangles, as it has all its sides of equal length and is also equi-angular. But just here comes the grand breach in the present Gift: this triangle is not directly derivable from any preceding solid form, and so is unlike the square or the right-angled triangle just given. Moreover it breaks the genetic thread which runs

through all of Froebel's Gifts and holds them together in organic unity.

4. The right-angled scalene triangle, which is easily derived from the equilateral triangle by a right line bi-secting one of the angles. Or it can be derived from an oblong by a diagonal line.

5. The obtuse-angled isosceles triangle which can be constructed from joining two of the preceding triangles (right-angled scalene) by their short sides. Or it can be derived from an oblong by the second diagonal line.

Such are the five *rectilinear* divisions of the Seventh Gift, as taught in the earlier manuals. The order sometimes varied somewhat from the preceding.

But the *curvilinear* element made itself felt by its absence, and so we have had more recently introduced some round tablets, or surfaces with a circular edge. Two (or three) divisions of these forms.

6. The circular disc, derived from a section of the sphere or cylinder.

7. This disc has been halved, giving a form bounded by a straight and a round edge.

8. Quarters of the circular disc are now to be met with in some places.

Thus the use of the curvilineal element has shown itself more strongly in the Gifts of Abstract Magnitude than in those of Concrete Mag-

nitude, though the need would seem to be quite the same in both.

9. Concentric surfaces. Here we may add, by way of completeness, that a new series has been proposed, but hardly yet adopted into the kindergarden organism. This is the concentric idea as applied to surfaces, both square, round, and cyclindrical, derived of course from cube, sphere, and cylinder.

Such is the material offered by the Seventh Gift, over which the thinking student puzzles herself a good deal, bringing up many problems. For this material is so abounding and yet so deficient; with an outward order in spots, yet with a deep inward disorder and scission; certain surfaces being rejected and others being selected, apparently by pure caprice. The fundamental question is, How can I make this Gift genetic, in correspondence with the total movement of the Gifts and Occupations? That is, genetic by separation (fissiparism), as has been the chief method hitherto, always of course to be followed by the return.

Other surfaces possible. Four rectilineal surfaces are chosen from the Gifts of Concrete Magnitude—the square, the right isosceles triangle, the right scalene, and the obtuse isosceles (we may leave out the equilateral for the present). Why just these four, when many others are possible? What is the ground of selection? Why take the

square, for instance, and leave out the oblong surface? We may indeed put two or more squares together and produce the oblong. That is not quite the same, still let it pass. We not only halve the Cube, but we quarter it in the Fifth Gift; why not do the same with the square and thus make the abstract and the concrete Gifts correspond in the child's mind?

Then we halve the oblong in order to derive the right scalene triangle, hence it is that we need the conception of a total oblong, not of two squares put together. Still further, why not draw the second diagonal through the oblong (brick), and produce the obtuse isosceles triangle? To be sure, another triangle by such division makes its appearance which has not been adopted, namely, the acute isosceles. But what reason can be given for taking the obtuse isosceles and rejecting the acute isosceles, its direct counterpart and brother? And, in the future, ought we to put both in or throw both out? Such questions will rise in the most conservative mind thinking closely upon this Gift.

When we come to the curvilineal series we find that the surfaces have not only been halved but quartered. Why should not the same rule apply to the rectilineal surfaces, the square and the oblong? If proportion be one of the great ends of these Gifts, why should it be violated in these cases?

These questions are all crying for one thing: a principle of selection. What law shall we follow in selecting and in rejecting the surfaces of the present Gift? It looks as if caprice had been largely dominant hitherto, or at least some supposed practical necessity. Still practice and theory ought not to continue in opposition to each other.

The right scalene triangle. This has one angle, the right angle, permanent, while the other two angles are variable, hence there may be many varieties of this triangle. The most natural derivation of it in the present Gift is from the oblong halved. But this is supposed not to give the best angles, which are usually said to be the angle of 90, 60 and 30 degrees. So its derivation has been adjusted to produce these angles. One way is to take as hypothenuse, not the diagonal of the oblong, but the longer of the two other sides, and construct upon it a new right scalene triangle, which is supposed to show the desired angles.

But there is a great objection to this derivation: it produces a break or dislocation in the genetic continuity which mars its simplicity and directness, and quite places the latter (the genetic unfolding) beyond the reach of the child. Moreover it covertly introduces a wholly new principle of determining the triangle, that through the angle. Now the time for this, we

hold, has not yet come, but is to be deferred till stick-laying.

Anything like an explicit measuring or naming of angles, excepting possibly the right angle, should be put off till we have movable sides, which is the case with the sticks. If you introduce the obtuse and the acute angles into the surface or solid, the child will think that these angles are as fixed as the right angle, whereas they are variable. Any angle greater than a right angle is obtuse, any angle less than a right angle is acute; thus there are hundreds, yes millions of each of these angles, while there is but one right angle in the universe. This total difference of character must not be lost on the child: the one angle is invariable in any position, the others have variability. The one is, therefore, the keystone of the arch, the others are the multitudinous stones on each side of the arch. Only in stick-laying, in which the line is totally abstracted from solid or surface, and is free to move, can the child obtain the true notion of variability, since the angle can determine the sides according to its size.

The right scalene triangle as surface should not, therefore, be used to instruct the child in the three kinds of angles. The right may indeed be designated, for it is the stable unit of all angularity and of all comparison of angles; but let even the names *acute* and *obtuse* remain

implicit, till they can be illustrated by the movable sticks which belong to the Eighth Gift. This need not be long deferred, if we recollect that it is a principle in all these Gifts that they are not only successive, but also interrelated. So we can have the sticks very soon after having the first lesson in the tablets.

Equilateral triangle. As already stated, in this triangle lies the center of the difficulties of the present Gift. It is the simplest of all the triangular forms, just the typical one, yet it is the most refractory one in its derivation. It will not somehow pull in the harness, but breaks out of the direct genetic sequence of the Gifts. The kindergardner loves it for its many good qualities, yet she cannot put it in order; she will not think of turning it out of school, yet it confuses all her arrangements; she is like the man who has hold of the galvanic battery, she can't let go, yet the thing makes her dance.

A few words upon the various derivations of this triangle, which as a surface should be directly taken from some preceding solid known to the child. But no such solid presents itself, at least not directly.

First of all, it has been derived geometrically by inscribing a hexagonal figure in a circle. Thus we can get six equilateral triangles, one of which is the shape sought for. But this method, which is suggested by Goldammer (in his book

on the Gifts, p. 118, Eng. trans.) is out of the reach of the child, depending as it does upon the proof of a proposition in Geometry.

Secondly, the equilateral triangle has been derived from the right scalene. Two of these put together by their middle sides may produce the form desired, but does not always. This derivation (yet it is really not derivation but combination of forms already derived), is, therefore, uncertain. If the two right scalene triangles are given the necessary angles, namely, 30, 60 and 90 degrees, this method will work, otherwise not. The difficulty, then, is thrown back into the right scalene triangle.

Thirdly, a cube can have its corners cut off till it becomes an octohedron. Then each of its faces can be an equilateral triangle. Here the objection is that we introduce an entirely new geometric form, going back even of the cube, which has been the source of all derivation hitherto after the sphere.

Finally, it is declared that this octohedron was genetically introduced into Froebel's Seventh Gift (not the present Seventh Gift) which was left unfinished. Hence the argument has been urged that this Gift ought to be finished in order to supply the missing link which is felt in the tablets of the equilateral triangle. Particularly has this view been enforced by M. Guilliaume, who argues strongly for the necessity of Froe-

bel's intermediate gifts (Seventh and Eighth) in order to derive in full these triangular tablets (see Barnard's *Kindergarden and Child Culture*, p. 361).

Our solution, as already intimated, is different. Guilliaume's proposition leaves untouched what is for us the real source of the difficulty, namely the problem of the variable angles, which call loudly for the free, movable line of the next Gift (stick-laying). Whenever we come explicitly to the obtuse and the acute angle, we must pass out of the tablets and take the child along. For now the determinant is the angle and a variable one at that, and it must have a fluid line, as it were, under its control.

The angles of the equilateral triangle are acute; they as well as other acute angles in triangular forms ought to be laid in movable lines by the child. At least this should be done in the beginning, even if we give later to the child the tablet of the equilateral triangle, that he may use it for various form-producing combinations.

A word here upon the preceding derivations. When two right scalene triangles of a certain kind (as above described) are put together by their middle sides, an equilateral triangle is produced. But such a result is not properly derivation, as there is no genetic separation from a solid in the process, but it is simply combina-

tion of two surfaces already derived from the solid corresponding to them. Such a figure, therefore, belongs properly to Morphology, as hundreds of other forms produced by combination of triangles in the present Gift. Thus an equilateral triangle produced by combination and not by derivation has no right among the original tablets, no more than any other form produced by uniting several tablets. In like manner, the obtuse isosceles has been formed by joining two right scalene triangles by their short sides. This again is not true derivation, but simple combination of forms already derived, and hence belongs to Morphology.

Historical. The troubles of the Seventh Gift reach back to Froebel himself. The classic passage of his works where he treats of it is brief, yet fairly distinct as far as it goes (see the passage in Lange's *Pädagogik des Kindergartens*, p. 570; translation by Miss Jarvis, *Education by Development*, p. 326).

Froebel does not number this Gift, in fact he does not consider it a Gift at all, but a wholly new division (*neue Abtheilung*) which he further divides into five series, and these series are subdivided into Gifts. For instance, the second series of this grand division is composed of right isosceles triangles, and this series is made up of five Gifts, which contain altogether 104 tablets. The third series (equilateral triangles) of the

same division has also five Gifts, and the number of tablets reaches the sum total of 149 pieces.

The kindergarden organism has had to reject a large part of this enormous material, and still there is probably too much of it. It is clear that Froebel was still in the stage of experimentation with this Gift, he had not yet organized it. The passage referred to was written toward the end of his life.

In reference to derivation, Froebel merely mentions it, adding that "it cannot be here carried out." This sounds a good deal like shunning the main point. One other expression he uses: "To the thinking man it (the derivation) lies tolerably near at hand." Really, however, the reader wishes to know how to bring it home to the child. With this short statement, hardly more than a page, Froebel passes to something else.

The next view we shall note is that of August Köhler (*Praxis des Kindergartens*, Dritte Auflage, II. s. I-II), who designates this as the Seventh Gift, and its five subdivisions as the five species (*Arten*) of tablets. This is an advance upon Froebel's nomenclature, and Köhler's method of treating the present Gift remains in use to-day. But he has no curvilineal tablets and no concentric surfaces, the suggestion of which also goes back to Froebel. Nor does Köhler very seriously concern himself about

derivation, being apparently more of an immediately practical than of a theoretical bent.

The last of the earlier important authors whom we shall cite in this connection is Goldammer, who names each kind of tablets a Gift and so has a series of five Gifts (from the Seventh to the Eleventh inclusive). Herein he has not been generally followed. But Goldammer pays more attention to derivation than does Köhler. On this side he is more profoundly sympathetic with Froebel, who always insists upon the inner connection and the genetic sequence of his Gifts.

Goldammer derives the right scalene triangle from the oblong brick of the Fourth Gift by halving it diagonally (p. 139), just as the right isosceles was derived from the square. This, in our view, is the correct procedure and best adapted to the child. Herein, however, Köhler is different: he changes the hypothenuse and constructs a new right scalene triangle in which the longer side, being just double the side of the square or of the equilateral triangle, is taken as the hypothenuse. (*Praxis*, II, s. 2.) Goldammer's procedure, we cannot help thinking, is more genetic and more truly educative, though Köhler's procedure has largely prevailed, chiefly on supposed aesthetic grounds which demand that the child see in his triangle "those three beautiful angles" of 90, 60, and 30 degrees.

We may add here that Goldammer's ordering

of the five kinds of tablets seems to us better than that of Köhler (who herein follows Froebel), inasmuch as he (Goldammer) places the right scalene next to the isosceles, making it the third of the series and thus suggesting the inner connection as well as the derivation. Still, in this respect also Köhler has been followed more generally than Goldammer.

In one matter, however, Köhler has not been followed by those coming after him. From the tablets he passes at once in his exposition to paper-folding, to an Occupation, which he calls the Eighth Gift. In general, Köhler makes no fundamental distinction between Gifts and Occupations, naming and numbering them all as Gifts. Herein Goldammer's work is far more discriminating and has, for the most part, furnished the standard.

Most of the recent kindergarden manuals, as far as we have examined them, call the Gift of the Tablets the Seventh Gift, and it is probable that this numbering will continue, though it has no special reason for existence. We think that the Seventh Gift should be the curvilineal, and the Eighth Gift the tablets.

It should be noted that one of the discords produced by the above mentioned change in the hypothenuse of the right scalene triangle is that the tablet is thrown out of agreement with the net of square inches which are marked off upon

the kindergarden play-tables. The equilateral triangle shows the same want of correspondence to the square inch, the unit of measure, so that no proportion is manifest between the two figures. In fact, this unit of measure, so carefully unfolded and preserved in the Building Gifts, is quite set aside by the above mentioned change, which, as far as we have been able to find out, is to be attributed to Köhler. The result is that not only is the thread of genetic connection broken, but also that the mind of the child becomes confused about a basic principle of the quantitative Gifts, namely, measure.

Summary of Contents. It is evident that the Seventh Gift as the abstraction of surface ought to stand in the closest relation to the preceding Gifts of Concrete Magnitude. The two belong together and should correspond, first, by direct derivation, second, by completeness, third, by symmetry. If a directly derivable surface is left out, there is an offense against completeness; if a surface not directly derivable is taken up, there is a sin against symmetry as well as against derivation. We shall discuss these terms more fully later on.

We shall now give a short tabular statement whose purpose is to order the contents of the Seventh Gift, showing them as directly derivable, as complete, and as symmetrical.

I. *Rectilineal surfaces* — those bounded by

straight lines, in forms both quadrangular and triangular. Quadrangles are two, the square and the oblong, each of which is divided by a first diagonal and then by a second diagonal, producing all the right-lined triangular forms except the equilateral. So the rectilineal surfaces, both quadrangular and triangular, are to be directly derived by separation from the cube and brick, solids belonging to the Gifts of Concrete Magnitude.

II. *Curvilinear surfaces* — those bounded wholly or in part by curved lines, the circular and the semi-circular, derivable from the ball or cylinder. Symmetry demands the round disc along with two sections of it, the half and the quarter (and possibly the eighth).

III. *Concentric surfaces* — derived not from a side or section of the Cube or Ball, but from the total solid, embracing its whole periphery, or all its sides. The idea here is that of totality — a totality of surface is presented, say in three diminishing forms verging toward the center or point. As already stated, these concentric surfaces have not yet been adopted into the kindergarden organism, though they were suggested by Froebel (see *Lange* II. 583; trans. by *Miss Jarvis*, II. p. 342. Also in *Barnard*, p. 360).

Psychologically we hold that this concentric principle both in the Cube and the Ball is necessary to complete the doctrine of surfaces in the

kindergarden. The rectilinear and curvilinear surfaces, as above given, are partials, while these concentric surfaces are wholes. Thus they are true integrating elements which unite the two preceding forms and point back suggestively to the generating center of all Gifts.

It may be stated here that Miss Gliddon, of Pratt Institute, Brooklyn, N. Y., has with great labor and ingenuity, constructed, or rather re-constructed these concentric surfaces in such a way that they ought to be, and, we hope, soon will be, a part of the necessary material in every kindergarden.

Such is a brief ordered survey of the contents of this Seventh Gift, actual and possible. Of course the objection is that the material is simply overwhelming, not to be compassed by child or kindergardner. Yet something has to be done, and the question again rises, What selection can be made out of this mass, getting its essence and omitting things less important?

In making such a selection we should keep in mind the relation between the Gifts of Abstract Magnitude and of Concrete Magnitude (including the Second Gift), how the former are derived from the latter, and how they should correspond. The surface is the first and most direct abstraction from the solid, and hence the correspondence of the two is the most intimate and immediate. If the derivation of the surface from the

solids of the preceding Gifts be broken into, dislocated, or interfered with in any way, there is at once felt a jar, a break in the genetic spirit of the whole series of the Gifts, which is first perceived by the kindergardner, but is sooner or later communicated to the child. This Seventh Gift has been hitherto the seat of a number of such discords.

Discussion of Derivation in this Gift. — In order that the source of these discords among the tablets may be understood better, and possibly avoided, we shall lay before the student the following thoughts upon derivation in the present connection.

(1.) The derivation should be direct. This characteristic will make it clear and natural to the child, who has already found the corresponding solids in the Gifts of Concrete Magnitude. The derivation proceeds by the principle of division, the surface is taken directly from the cube and the oblong and their solid derivatives in the Building Gifts, and also from the round bodies of the Second Gift.

Now when we introduce a surface not directly derivable from the solids which have gone before, as the equilateral triangle, we snap the genetic link, and the result is the whole chain of genesis in the Gifts, and in the Occupations too, is broken. For the whole chain is just as strong as its weakest link, which when snapped leaves the

two parts of the chain dangling asunder. Hence the feeling of dissonance which always acompanies, according to the testimony of a large number of the most experienced kindergardners, the equilateral triangle on the score of its derivation.

Again: when the hypothenuse of the right-angled scalene triangle is shifted from the diagonal to the side of the oblong for the sake of the angles, we have broken the genetic connection for some outside purpose, and there is a violation of the principle of direct inner derivation.

Again: when two right scalene triangles are put together by their short sides in order to form the obtuse isosceles triangle, the procedure is not one of derivation from the solid of the Building Gifts, but a combination of two pieces into a new form, and so belongs strictly to Morphology. That is, such a form is not primary and has no more business to be an independent figure than any other of the hundreds of combined figures of this Gift.

(2.) The derivation should be complete. That is, all the derivable surfaces should be given, at least all the primary and essential ones. The corresponding solids of the Gifts of Concrete Magnitude must be fully represented in those of Abstract Magnitude, else there is a gap which the child himself will feel and sometimes actually point out. Indeed, if the genetic purport of the Gifts be adequately brought out in his manipula-

tion of them, he will be almost certain to discover the vacancy.

Now, when we take the cube and abstract its surface for the square tablet and leave the oblong without any representative in Abstract Magnitude, there is the shrillest kind of dissonance, and the very idea of derivation is stabbed to the heart. In the name of all the prophets, why should genesis act on the cube and not on the oblong? The inconsistency deepens when we derive a triangular tablet (the right scalene) from the oblong, and not its own quadrangular surface, though the latter has to be conceived (that is, generated) before we can get the former.

Such is the original sin against completeness in these tablets, but there are lesser sins of the same sort. The taking of the obtuse isosceles and the leaving out of the acute isosceles when both are derived by the same act of diagonal division of the oblong; the quartering of the round tablet and not of the square tablet; the omission of all concentric surfaces, spherical, cylindrical, rectilineal, are offenses against completeness of derivation, as well as against symmetry.

What is sought for is a totality of derivation, giving the entire process of the surface in Abstract Magnitude, as derived from the Gifts of Concrete Magnitude.

3. The derivation should be symmetrical. That is, the derived forms should be seen coming forth

genetically in a certain order and proportion, fulfilling their inner law. All incompleteness is unsymmetrical, but not all completeness is symmetrical. Completeness demands that *all* the derived forms be given, symmetry demands that all and *no more* be given, and that they be given in their genetic order. Excess or superfluity is a violation of symmetry, though not necessarily of completeness. The derivation must be, therefore, not only direct, not only complete, but also ordered, proportionate, neither too much nor too little, not omitting anything inside nor adding anything outside.

For instance, when the right-scalene triangle, derived directly from the oblong by the first diagonal, is placed after the obtuse isosceles triangle, derived from the second diagonal of the oblong, there is an offense against symmetry pure and simple, against the order of derivation, which otherwise may be both direct and complete. Yet this offense against symmetry is found in many manuals. To order the right scalene, or the obtuse isosceles after the equilateral triangle is, in our opinion, an offense against symmetry, which does not permit any dislocation or hap-hazard arrangement of derived forms.

The presence of the equilateral triangle in the tablets is a sin against symmetry, which allows no superfluous or outside form, as well as against derivation, which must be direct from the solid.

The omission of the oblong tablet, and the omission of the acute isosceles triangle are violations of symmetry as well as of completeness of derivation. The division into quarters in the Fifth Gift has no counterpart in the tablets, still less has the suggested division into eighths. Symmetry and completeness require that they at least be indicated to the child, who will finally call for them, though they be not especially embodied in the material of this Gift.

Such are the three general principles pertaining to derivation, which may be of some guidance to the kindergardner in her attempts to bring into order this somewhat chaotic Gift. Directness, completeness, symmetry — these will show the main lines of relationship between the antecedent solids and the derived surfaces. Any violation of them, at least in the primary and essential forms, produces a breach or a dissonance in the genetic sequence, which mars the educative value of the Gift.

And we affirm emphatically that the child, once getting into the line of this genetic derivation, employs far more quickly and easily the present Gift and its related Gifts than if they be presented unconnectedly and fragmentarily. The reason is manifest: he himself, his Ego is just this creative energy which he sees unfolding and taking on form in these Gifts.

OBSERVATIONS ON THE TABLETS.

The present Gift is not put up in a single box like the previous Gifts, but has several boxes, one for each kind of tablet. The number of pieces seems not so fixed as in the solid Gifts, and the rule of using all the material is not so rigidly enforced.

1. The training of the eye of the child to the unit of measure is continued in his use of the square inch tablet and other tablets. Also the training of the eye to the measurement of angles is begun, as it has hitherto been accustomed chiefly to the right angle, which is the fixed unit of measure or comparison for the variable angles, obtuse and acute. The right angle dominates in the Building Gifts of Froebel, and in architecture generally, in the house, in its rooms, doors, windows, etc. Particularly Greek architecture is in the main rectangular, into which the Roman introduced his arch. The right angle is a kind of standard of angularity, which is first to be acquired by the child.

2. The most of the tablets can be modeled by the child out of clay, when he has begun the Occupations, especially the first one, that of clay-

modeling. Thus the connection between the Gifts of Concrete Magnitude and their derivatives in Abstract Magnitude becomes more vivid, indeed it becomes an outer act performed by the child himself in correspondence to the inner abstraction. In such a way does he think by doing, or make his doing think. In the Occupations he is to reproduce his material, at least the form of it; so he forms his tablets, which hitherto have been given him. In other Occupations, such as paper-folding and paper-cutting, the tablet is or may be reproduced. In general, the surface begins to approach and invite the Occupations, furnishing to them their chief material, namely paper, which is nothing more than embodied surface waiting to be worked over into form.

3. If we relegate the equilateral triangle, especially in its formation, to stick-laying, where it properly belongs, we shall be rid of the chief burden. If we relegate the doctrine of angles, particularly the acute and the obtuse, to the next Gift, where it has the conditions of a proper treatment, we shall have time and opportunity for something else.

If we leave out the lesser divisions, the eighths and in some cases possibly the quarters, which are secondary and less essential forms, it will help keep down the excessive increase of material — always a prime object. Still, for the sake of sym-

metry and completeness, the skillful kindergardner will be able to indicate even these lesser divisions, for some child will be sooner or later asking for them.

4. Concentric surfaces have little constructive adaptability. One cannot make anything with them; thus their morphological capacity is in striking contrast with the flat surfaces, rectilineal and curvilineal, which are capable of an immense variety of forms. In this respect, the concentric surface (in Abstract Magnitude) differs from the concentric solid (in Concrete Magnitude) to whose form the arch in all its sizes belongs. Still the concentric surface is a logical part of the system of surfaces, and hence should be represented in the present Gift. It gives the idea of completeness, which is not in the rectilinear or curvilinear surfaces. This completeness is often popularly expressed in metaphor by the terms all-sidedness and all-roundness (Cube and Sphere). The surface in concentrism returns into itself, so to speak, and thus completes itself. For instance, the curve returning into itself as line makes the circle, but the circle returning into itself makes the sphere or completed spherical surface.

Still further, concentrism suggests the movement inwards, to the genetic Point, which is the very source of this Gift and all the Gifts. And the Point is also the end toward which this Gift of Abstract Magnitude is tending, so that these

concentric forms may be said significantly to point towards the Point, being prophetic of the same. Likewise concentrism suggests the movement outwards, the unfolding of the inner energy, which manifests its degrees of power in these successive layers.

5. In regard to nomenclature we should observe that these embodied concentric surfaces, even when spherical, are still called *tablets*, though the term is usually applied to flat surfaces, straight-lined and rounded. In the sense given the egg-shell would be a tablet. We need a general term embracing rectilineal, curvilineal and spherical surfaces, when re-embodied in this Gift for the child; so we seize upon the word *tablet* and press it into service till a better is found. Moreover the word *concentric* at first suggests the circle within the circle, as the concentric rings in water, or the concentric half-rings in a rainbow. But here we apply the term to spherical forms, and even to rectilineal square forms, as the cube within cube is concentric. It can also be applied to the cylinder, the cone, and the pyramid. The principle of concentrism is co-ordinate with, but distinct from, the curve and the straight line,

Concentrism accordingly, shows, not the linear, but the surface movement from inner to outer and from outer to inner. That is, the total surface moves, not limited by straight lines or curves.

The idea of totality now enters the surface and completes it in thought and for thought. The child will undoubtedly take this idea in his way, namely through the sensuous forms. Not much manipulation is required, and therefore not much time is taken. Still for the child, too, the conception of surface is by these concentric forms made complete.

6. The question of color has not been touched upon, being deferred till we come to the Occupations, in which it is first to be employed systematically. In the quantitative Gifts, color is present, but its application is not explicitly set forth, inasmuch as it rightly belongs to the qualitative Gifts. The fact should be stated, however, that the earlier kindergardners, including Froebel himself, introduced color into their tablet work, thus making this complicated Gift more complicated, and adding to its material already overwhelming.

7. Again let us come back to the fundamental idea in all this mass of things: Derivation. The child is to develop Derivation within and without, to commune with the same and to make it his own. Thus he unfolds the inner genetic principle of himself and of the world, he shares in the creative act of the universe, and this is the highest goal of education. For it is this creative act which unifies him with the creator.

8. Already we have heard the voice of the

Surface crying out for the Line, which bounds it, determines it, in a sense produces it; that was the call for the movable Line, free, independent, liberated from all servitude to matter and even liberated from the Surface. To this we now pass.

THE LINE.

If we now take away in thought a second dimension, say breadth, from the surface, we have one dimension left, length, or the Line. The solid, losing two dimensions, is simply lineal.

Usually the forms of the Line, as straight or curved, have been classified in two Gifts (sticks and rings). It is a noteworthy fact that the curvilineal element first entered the Derived Gifts of Froebel in the Line (the rings), from which it seems to have traveled backwards and to have suggested the round tablets, and now it is going back still further and is laying hold of the solids. Thus it is the Line which classifies and gives name to the rectilinear and curvilinear Gifts of Concrete Magnitude — solids which are straight-lined and curve-lined. In fact, rotundity, with which we started in the Ball, becomes completely explicit and free in the round line or circle.

The same principles of derivation hold good in the line as in the surface, namely, there should be directness, completeness, symmetry. The genetic connection must remain active and in its integrity, otherwise the educative value of the Gift is impaired. The child himself will trace the relation between the present and the ante-

cedent forms, he will feel any gap in the succession, and be confused by any superfluity or dislocation. If the material be incomplete, disjointed, disordered, the child, whose mind is inherently genetic, will lose much time and not get the main thing at last.

Our task is, accordingly, to make the abstraction of the Line and to embody that in a material form. It has been with us from the beginning in connection with solids and surfaces, but now it is to be made free and to be regarded as it is in itself. Here we may note the same process as in all the Gifts of Abstract Magnitude: first is the concrete solid, second is the abstraction, here the Line, third is the re-embodiment of this abstraction for the child in the form of sticks and rings.

The single dimension which is now separated and held fast is length, while the tablet had two dimensions. Thus the line is further removed from the material solid, is more ideal than the surface, in which the line is still an edge and not yet free. We may, therefore, say that the line is more a thing of mind than the surface and is more adjustable to mind and thought than the surface. We lay the sticks (lines) as we please, but in the tablet the line is fixed in the material, is determined by that, and not by us, at least not directly by us. Such is the chief new fact appearing in the line; its ideality, its freedom.

The bound or the limit, accordingly, is cut off from its object and set free, being no longer fast in matter. It is movable, having all the liberty of space, and can be run anywhither, even to the furthest star. This property is what gives it a form-making power, in a manner we shall see that these sticks introduce us to formation, even to reproduction, and thus herald the approach of the occupations.

Let us trace a little this liberation of the line, which in a way has been enslaved from the beginning of the Gifts, though always struggling toward greater freedom. Nearest to being free it is in the side of the bounded surface, as it shares in the ideality of the latter, but is still tied to the same as limit. In the edge of the Cube it is explicit, visible, yet held fast in matter. In the Sphere, however, it is implicit, unseen, not yet brought out, not yet born into the world. As diameter or axis of the Sphere, it is merely an internal Line which is, first of all, to make itself outer. This undeveloped stage is the least degree of freedom. So the diameter of the Sphere, the edge of the Cube, the side of the Square, are all steps in the process of the Line, which in the Eighth Gift has declared itself "free and independent."

When we consider the material of this Gift (or Gifts), we find the same general character; there is no absolute fixity in it, or at least it

allows greater variation than other Gifts. The sticks are put up in packages, say ten in number, but this may vary. Then the number of sticks in each package is under no iron necessity. They are usually of a certain length, yet they are breakable and ought to be broken when the end in view demands it, for this is not destruction, but formation.

Thus the material through its freedom, is adjustable, it begins to have a kind of plastic quality. The sticks are adjustable in space, being movable; adjustable in themselves, as regards length; adjustable in the quantity of material, at least up to a certain point. Thus the external element of matter is no longer such a controlling thing as in the solid Gifts; an inner principle seems to be more decisively in command.

Still this new freedom must not be allowed to lapse into license, wherein lies the danger of the present Gift. Too often a bundle of sticks is thrown to the child that he may give vent to his caprice, which has become troublesome to the kindergardner, or uncontrollable.

But in such a case the tub will not usually satisfy the whale, now incarnate in the form of the little boy, who well knows what the whole thing means. He is bound to assert his freedom, having in hand a free weapon. Have we not seen these sticks broken to pieces and thrown on the table and floor, or used as a kind of bayo-

net with thrust delivered in full charge, each child trying to poke it into the ear, nose, mouth, eye of his neighbor, who sets up a howl and retaliates with grim vengeance? Like freedom itself, these free sticks can be employed for the greatest disorder, turning the kindergarden into a little mob full of riot and fight and chaos generally. And so the children, like many grown people, must make a start to get free of some of their freedom. Accordingly we are to have order in stick-laying, as we are to have law in our liberty. The starting-point is to bring order into our material and to connect it genetically, and, if possible, symmetrically, with what has gone before. We found in the solid Gifts (concrete magnitude), as well as in the surfaces which we have just considered, a movement of this sort: rectilineal, curvilineal, unification of the two. It will be observed that this division is based upon the line, that is, upon the very element which is now abstracted and regarded by itself. Thus we have reached down to the principle itself of the previous organization of the Gifts, which principle is now to organize itself. Let us see how it will behave in this new domain, whose contents may be ordered as follows: —

I. Rectilinear forms, those figures which are bounded by straight lines, and so are given in outline.

1. Quadrangular, or better, quadrilateral figures, such as the square or the oblong, which are now re-produced by sticks.

2. Triangular figures, formed from the preceding by diagonals, which give the various triangles. Then a deeper separation here takes place, the separation between sides and angles. The angle now rises into importance and determines the side which is movable. Triangulation or the making of triangles according to the angle begins at this stage of stick-laying.

3. Concentric figures, both quadrangular and triangular; or squares within squares and triangles within triangles.

(1.) First is the immediate idea of size through the different sizes laid alongside of one another.

(2.) A new difference manifests itself, that between size and form, the latter being the fixed, the invariable — all these sizes of triangles in concentric layers have the same form. Also the form is the determinant of the size, which thus finds its ground.

(3.) The inner, invisible point, the genetic center of all these forms, is suggested by concentrism, which moves towards the same as its source or cause.

All concentric figures, though they be rectilineal in form, hint a determining center and a line extending from within outwards, which line

taken as a radius will produce a circle. Hence we go over in thought to the following: —

II. Curvilinear forms — those figures which are bounded wholly or in part by curved lines, and so are given in outline. Usually they are made to constitute a new Gift, the ninth, that of the rings. The curves are confined to the circle.

1. The entire circle as an outline of the Sphere whose rotundity is reduced to a Line.

2. The division of the whole circle into halves and quarters (and possibly eighths). Thus the rectilineal element enters the curvilineal and unites with it to produce new figures.

3. Concentric circles or rings, of three sizes and in three divisions, all pointing toward the determining center.

III. The two elements of the Line, the straight and the curved, are united in many ways, producing many forms. Already we noticed the rectilineal separating yet joined with the curvilineal in the half and quarter circle. A full development of the forms which result from the union of these two elements belongs to the Morphology of the Gifts, which subject lies outside of our present plan.

Such, however, is a brief summary of the embodied line, the second stage of the Gifts of Abstract Magnitude, having one dimension, that of length. Its relation to the Gifts of Abstract Magnitude is manifest from the preceding outline,

wherein are shown its direct derivation, its completeness and its symmetry.

The student will note how strong the principle of reproduction of previous forms is in this Gift. Herein it approaches the character of the Occupations whose essential fact we shall see to be just this reproduction. The sticks reproduce in outline all the surfaces, square and round, resembling the Occupations of sewing, dotting, drawing. In fact, stick-laying may be considered an embodiment of rude linear drawing.

Still stick-laying belongs to the Gifts and not to the Occupations, inasmuch as it employs external combination of objects and not the inner properties of matter, though when you break a stick you test and employ an inner property. Owing to the freedom of the Line which the stick represents, it has a reproducing power in its combinations. So the Line is on the border of the Occupations and is quite ready to go over to that realm, where we shall often meet with it in the shape of a thread or slat or strip, or even a cut Line. Indeed the slat is a Gift if its pieces are merely laid or externally combined; when, however, its pieces are held together in forms by elasticity, the whole belongs to the occupations through the employment of an inner property of matter. (See this subject unfolded in the introduction to the Occupations.)

The Line can be used for counting, indeed a

primitive way of reckoning or keeping tally is by means of little sticks, still in use in cases where "figures can be made to lie" by being rubbed out or changed. Indeed the abstraction of the Line has a greater affinity for number, which is also an abstraction, than the solid or even the surface. Lines easily stand for, perchance turn to, numbers; hence they are often used in the kindergarden for the first lessons in arithmetic.

The Line gives the inch in length and hence furnishes the basic measuring unit or modulus for distance. The linear inch is now separated from the cubic inch and also the square inch, and does service in its own right. And in the matter of real service, it mostly performs the work of the other two, being free and adjustable; we measure the square mile by a Line as well as the cubic yards of a reservoir or an excavation. So the Line is the practical man of the family, who finds out by his yard-stick or tape-string the length, breadth, and height of the object. Actual measuring (and with this comes necessarily counting) enters in completeness with the Line, though we have made a beginning in the previous Gifts.

Geometry has also its strong claim upon stick-laying; we have already seen how important it is for embodying geometric figures. Especially the doctrine of the triangle with its two variable angles, the acute and the obtuse, belongs here.

In stick-laying we should introduce whatever there is of angle-measuring (goniometry) allowable in the kindergarden (which cannot be very much). Those highly important angles in all construction, 30, 60, 45, and 90 degrees, the child may at least see and construct in his more advanced course, even if he does not name them. To a certain extent he can become familiar with them and judge of them, just as he learns distance and computes it unconsciously. Thus he is making a faint start in another mathematical science, trigonometry, one of whose main elements rests upon angle-measuring in a triangular shape.

Already it has been said that triangularity has a special place in this Gift. We may note a small beginning and advance in several important sciences — arithmetic, geometry, trigonometry, drawing. All this, of course, is given in play, with material things; but the play, though spontaneous, is filled with meaning and instruction; through it the child is taking possession of his true spiritual heritage transmitted from the past and containing the future. In this way stick-laying is not a means of license but of freedom, bringing to the child a little strain of the cosmos and not a discord of chaos.

Rings. It has been already stated that the sticks and the rings have been arranged in two separate Gifts. The ring is the embodied circle as distinct from the Sphere. The circle has a

very important place both in nature and mind. In the latter, it has always been taken to represent in outward shape the return, which plays such an important part in mythology, poetry, art, as well as in psychology. It is, therefore, one of the most significant and cherished symbols of the human race. In these gifts it appears in genetic order next to the last one, symbolizing in outward shape the return which is soon to become inward. Of this we shall speak again.

We have already unfolded these circular forms in their psychical order and connection. Yet here comes the first discord. That the curvilineal element should be placed in a special Gift and thus separated from the rectilineal throws the movement out of symmetry with the Seventh Gift in which both elements are joined together. Still as all manuals within our knowledge are agreed on this point of making and numbering the two Gifts, we shall at present have to follow. It is true, however, that the numbering of the Gifts of Abstract Magnitude varies in the different manuals, though most of the later ones call the rings the Ninth Gift.

The quantity and kind of material have also varied with different authors. Froebel's widow, who published after his death this play-gift from suggestions of Froebel himself, has 24 whole circles and 48 half circles, and apparently (we only know the work through others) no quarter

circles. The latest books diminish this material, and add the quarter circles, which make it symmetrical with the double cuts previously suggested in the solid Gifts and in the tablets (usually 12 whole, 18 half, 12 quarter circles). Also three sizes, three, two, and one inch in diameter.

The ring suggests the return to the ball of which it is an outline; the periphery is seen as a line whose character is to return into itself. Thus the circle has not beginning or end, it is in a way self-limiting and hence has been often used as the symbol of eternity. The ring with its abstraction from the solid suggests the self-returning Ego more emphatically than the Sphere, since just this self-return is what is abstracted in the circle. The straight line is bent around till it comes back to itself, as it were, like consciousness. Mythology has seized upon the circle and hinted its importance in the earth-serpent, which, coiling round our globe, puts its tail into its mouth and thus holds up our terrestrial sphere. And somehow at last it must be upheld by self-determination.

The angle, which was such an important element in the preceding Gift (sticks), quite vanishes in the circle. All angularity is transformed into roundness, whereof the meaning is hinted in the metaphorical use of the terms. The line of beauty is supposed to be a curve, though

certainly the straight line is also employed in art, and in morals the right (right-lined) has a better name than the crooked or devious.

The curvilineal outline is more suitable for the reproduction of vegetable and animal forms. Nature bends and turns and curves; the tree rounds itself out in going upward into the cylindrical stem, and broadens itself into the round-shaped leaf.

The semi-circle shows the circle divided, and is not so permanent a form, not so self-contained as the circle; it participates in other things, while the circle produces the impression of exclusiveness, self-sufficiency. Turn it about and it is the same, or in the same relation to the outer world. Not so the half-circle, whose self-including home (which is the total circle), has been broken into, and the outside world can step in.

Moreover from tip to tip it suggests a straight line; here the stick can be added. So there begins a union of the curvilinear and the rectilinear, which is still further developed in the quarter circles. Thus the circle and its diameter have become visible, which conception we started with in the sphere.

Also letters of the alphabet and figures of arithmetic are made by the child from the various shapes of stick and ring united.

The semicircle we can take from the arch and

the arc, both of which we have noted in the Building Gifts. Or we can take it from a division of the Cylinder, which belongs to the Second (Originative) Gift.

It has been already observed that the concentric rings are seeking the Point inward, which is their center and origin. They give in outline the Sphere or its periphery, so that the Point as the center of rotundity has now become visible, explicit, embodied — which as implicit was the starting-point of the Ball. So the concentric rings begin to carry us back to the beginning — which movement is not yet completed, but will be soon, in the Point taken by itself.

We may consider the circle (or ring) as an outer self-return, the end visibly comes back to the beginning. But this circle also suggests the Point within, as central and determining; this Point will show the inner and deeper self-return which embraces the whole series of Gifts, which, however, must be ideal, though intimated to the child by these ordered sensuous objects. This Point suggested by the circle and specially by the concentric circles, is next to appear, taking on visible shape for the child.

OBSERVATIONS ON THE LINE.

1. The first reflection which comes to the kindergardner in reference to the foregoing suggestions, pertains to the increase of material. Already we have been giving some hints with an eye to this difficulty. It is very generally agreed that the kindergarden has now all the material it can employ to advantage. Still certain changes must be allowed, if they are made in the spirit, not of innovation, but of improvement. If we can find a better ordering of the material, and a better method of presenting it to the child, there will be progress. Attention may be called to the following points:—

(*a.*) A little increase of material may be a great increase in clearness and genetic sequence. An additional block may bridge a chasm for the child and thus bring about a great gain in time. Hence we are to consider carefully in what part and for what purpose any increase of material is made. A stone brought and thrown into the stream may enable us to step over at once, where otherwise we would be detained for hours, or brought to an absolute standstill. An increase of material does not necessarily signify,

therefore, an increase of work, but may mean a decided diminution of it.

(*b.*) There needs to be no increase of material. The primary and essential derivation of surfaces and lines must always have representative forms, but the secondary and less essential derivation (for instance, the division into quarters and eighths) can be indicated at times in a simple suggestion (say, by means of drawing, paper-cutting, or paper-folding). Still the primary derivation must have all the qualities above given: it must be direct, complete, symmetrical.

In this manner, the material of surfaces and lines becomes, in a degree, elastic; it can be increased or diminished, without impairing the genetic process of the Gifts. And we must recall that a large portion of this material was originally made by the kindergardner — a condition of things which has its decided advantages over the manufactured material of the present time. Though we cannot go back to that condition, we may seek to restore some of those advantages.

(*c.*) Even if the material be increased, the child learns to employ it far more quickly and easily when he has before himself the total derivation, than when it is given to him haphazard and in fragments. When the genetic thread is clear, consecutive, and whole, the quantity of material makes not so much difference, he can string it all on the thread.

The great saving to be made is in time and effort, and in the avoidance of mental confusion. Now if the genetic thread be broken, or dislocated, a small quantity of material will soon become burdensome and confusing.

The main educative object of the Gifts is the genesis, the derivation, which is the child's own creativity realized in things which he sees and with which he plays. If he be truly the child of the Creator, he must be able to create after his divine Parent; in fact, he must play creation, even the Creation of the Universe, after the original divine fiat.

2. The so-called Jointed Slat is a line and thus belongs under the present caption. The Slat is essentially a stick, though it is sometimes thought to be a transitional form between a surface and a line, on account of its breadth. But its essence is linear, the breadth is employed simply as a convenience for making the joint, in which lies the especial characteristic of this kind of line.

The Jointed Slat, therefore, has the point of intersection fixed, yet axial; thus the variable angle as well as its movable sides are made visible. The sticks now lay themselves, so to speak, they make their own angles and figures, the outer inpact being given. The Jointed Slat thus suggests the axial nature of the Point, or the Point as turning-point when taken by itself. Such is the prophesy here, which is soon to be fulfilled.

3. The Thread-game may also to be introduced in this connection, as it is based upon the line. There are several kinds of Thread-games; the chief one is the making of the outline of forms by means of a wet thread moved by the finger on a surface. The pliability of the thread is the property which mainly comes into play; this use of an inner property suggests the Occupations, but as the thread is manipulated by the hand without an implement, this game may be still regarded as a Gift. On the other hand, the forms of the wet thread are not given to the child and these combined, but are made by him; this fact again brings the game into touch with the Occupations.

The Thread-game has no fixed point, but is a line pliable at every point, wherein lies its contrast with the Jointed Slat. Thus the axis is movable as well as the line, the joint is anywhere, and the line follows. The rigidity of the stick and ring is now broken at every point, and the line in its material representative has become absolutely flexible, yielding, responsive; it is ready to be straight or curved or both together. In fact, other forms now begin to come to light, hitherto not possible, such as the oval, and even the spiral.

It is manifest that in the thread the line has attained a considerable degree of freedom within itself. At first the line was a liberation from

matter and then from the surface. Still it was rigid in the sticks and rings — which was a kind of unfreedom. This movement toward freedom inside the line itself through various plays we may briefly designate as follows: —

(*a.*) The simple stick (straight, round, concentric), separate by itself, yet fixed within itself at every point, or at most a little flexible. These sticks produce forms from an outside force wholly, applied to each stick.

(*b.*) The jointed stick, fixed at one point on which it turns; or several sticks fixed together at several points. These sticks produce forms from the inside, from the fixed point, though the starting force comes from the outside.

(*c.*) The flexible thread, which is a line with an axis at every point; thus line and point are movable, and in this sense free. The forms are produced from the inside, not, however, from the fixed point, but from the movable point shifting anywhere along the line.

Thus we may trace a movement in these three plays with the line from an outer to an inner freedom, from the line as externally determined to a condition of internal determination. On account of this last fact, the wet thread seems to the child to make figures which have life and wriggle and crawl. Popular belief affirms that a horse-hair thrown into water becomes alive and turns to a snake.

4. All stick-laying, on account of its producing line and outline so distinctly to the eye, may be considered a kind of drawing, and so on this side the present Gift (or Gifts) approaches the Occupations. Especially the Thread-game, by means of its free-moving outline, lends itself easily to a rude kind of picture-making, and thus is very interesting to the child, who sees the forms growing, as it were, beneath his fingers. The ends of the thread being joined together, and the whole thread moistened and laid upon a surface, any change in its outline produces a new shape. We may also see in this play of thread-forms how the Point as axial moves out of itself, how it is in a sense self-moving or self-separating, and projects itself into a line — a thought which we shall find to be fundamental when we come to the Point. Indeed we may behold a transition here from the Line to the Point.

5. We may again emphasize the fact that concentrism in the Gifts of Froebel first appeared in the Line, specially in the rings. In fact, concentric rings, are often seen in nature, for instance in water, in certain stones, in the phenomena of the sky, and in the vegetable kingdom. Annular shapes and outlines are also very common in art, particularly in decoration.

But in the present exposition we have applied the term concentrism, not only to the line, but also to the surface and likewise to the solid.

Such an application of the term extends its usage, and causes some difficulty at first. Therefore it is well for the student to remember the following items in this matter:—

(*a.*) Concentrism is applied to straight lined figures (for instance, the square and the cube) as well as to curved figures.

(*b.*) It is applied to the spherical surface as well as to the flat surface.

(*c.*) It is applied to the forms of Concrete as well as of Abstract Magnitude — solids, surfaces, and lines.

(*d.*) The ring within the ring is the plainest and probably the primary usage of concentrism. But from this its first and simplest application it passes to embracing quite all the Gifts in its sweep.

So much in regard to the use of the word. In regard to principle of concentrism and its place in a complete ordering of the kindergarden Gifts, we have already spoken sufficiently.

6. We have already alluded to the import of the Line in its ethical aspect (see the discussion under the head of the Curvilineal Gifts). Language picks up the Line and applies it metaphorically to human conduct. We have to think, accordingly, that there is a moral suggestiveness and hence moral training in the Line for the child. In the history of the race, man seems to make the abstraction of the Line when he makes

the abstraction of the virtues, and names a number of the latter after the Line, which thus appears to him an outer sensuous representation of inner character.

In the Gifts of Concrete Magnitude we have anticipated the Line, making it the basis of the important distinction into rectilineal and curvilineal. Thus the Line has already shown itself a governing principle in the ordering of solids. And hereafter in the industrial occupations we shall see the Line manifest the same power. It will divide and then unite things; it will limit and hence form figures; it will enter into matter and transform the same, along with the other elements of Abstract Magnitude (surface and point).

7. Already the Line has, in a number of ways, been calling to, or, if you please, pointing to the Point as its source, origin, cause. The beginning and end of the Line are in the Point, which is thus its Alpha and Omega, whence it cometh and whither it goeth. In the Thread-game the Line revealed the Point as its axis. In the concentric rings the movement is from and to the Point as the central source. So we may see the Line ever suggesting and indeed returning to its origin — the Point.

The Line, accordingly, forces us to the Point, literally and metaphorically. To the Point, then, we go.

THE POINT.

This is usually numbered as the Tenth Gift and is the last of the Quantitative Gifts. The Point has its difficulty, owing to the obvious contradictory elements in its conception. It is the abstraction from all Magnitude, yet it is a principle of Magnitude just in such abstraction; it is the negative of all space yet is spatial just in its negation; it is the annulment of all the dimensions, yet somehow remains a dimension, and the most important one; it is the end and winding up of all the Quantitative Gifts just through its undoing of Quantity; still we have to consider it a true Quantitative Gift.

Such are some of the points which set the brain to whizzing about the Point. We must consider this to be not a dead Point, but active, yea self-active in a sense; it is axial, turns on itself, and hence can return; it is indeed the Point of Return, moving out of the Abstract to the Concrete, and still further sweeping back to the beginning, to that initial central Point of the Sphere out of which all the Gifts have been unfolded.

From these statements the fundamental fact

concerning the Point begins, we hope, its dawning: it is a thought, and hence endowed with the creative power of thought, of the Ego itself, of which it is an externalized representative.

So we have come to the final Gift of Abstract Magnitude, the Point, which abstracts from all three dimensions — length, breadth, and thickness. What is left? It would seem to be mere nothing and in one sense it is; there is no longer any outer extended space, even in the form of a line; all extension is negated, and the extensive or quantitative Gifts have reached their conclusion in the Point.

Still there is something left, some result, and that is just this act of abstraction, which is now to be projected into externality. The Point is the abstract negative power of the Ego externalized, it is the Ego's mastery over space made spatial. That is, starting with the Point the Ego begins to re-construct space out of itself, determining it by Point, Line, and Plane, which are its own; it makes over space just as it makes over matter, it produces in space the form or the mould into which it is going to pour the material world. The Point is really subjective, the Point of the Ego, which has just this separating power within itself and self-projection into an object.

In the Point, therefore, Abstract Magnitude has abstracted from all Magnitude, from all extension, for the Point has no Magnitude, no

extension — no length, breadth, or thickness. Yet the Point has position, it is said; it is positive, not negative, or not wholly so; what is this positive element in it? Inasmuch as it is the active, negative might which overcomes space, it must have the positive mastery over space; the Point is the primordial space-controller, the creative starting-place of form. In this connection we may note that the Gifts begin with the Ball and the Ball is determined by an inner central Point, out of which with the diametral Line is generated this whole movement of Play-gifts..

The Point has existence, accordingly, in the Ego primarily as space-negating, and hence as space-controlling. It is the turning-point of the Gifts, turning them back to the beginning, and hence bringing about the return or the third stage of the Psychosis of the Gifts; but it is also the turning-point forwards, carrying the Gifts over into the Occupations through its generative or reproductive energy.

We noticed the freedom of the Line through being abstracted from surface and solid. In like manner the Point has become free, movable, no longer fixed as it was in the angle of a triangle or in the corner of a cube.

But the freedom of the Point is different from that of the Line, being free of spatial length, which still incumbers the latter in image or idea.

The Line is still stiff, so to speak, having many points in fixed relation to one another. But now even this fixity of the Line is dissolved into its elements; the remaining principle of extension, which is length, vanishes into the Point, which is the complete abstraction from all space or extension.

There is a kind of history of this liberation of the Point, as there was of the Line. The Point, too, was enslaved, imprisoned, enchained primarily in the very heart of the Ball, where it lay in its dark dungeon, held fast even in the Line between two radii. Then came its first seeing of the light of heaven when it issued forth as the corner of the Cube, though still involved in and weighed down by matter. A new release it was when made into the ideal angle of some line-bounded surface, till now it has escaped even from this last thralldom, and is free and independent in its own right. Or we may regard these as the stages of its birth, for as it lies in the Ball it is the child yet unborn, which is to come into daylight and grow up into independence, becoming a free individual. An individual, literally that which cannot be divided, hence not spatial, not extended, a true unit, "one and indivisible."

We see that the Point breaks up form, specially geometric form, being spatial. Through the abstraction from all three dimensions — length, breadth, height — the outward shape

vanishes into the Point. But the Point as just this abstraction from all the dimensions, is itself a dimension, a new dimension which is master over the former dimensions which belonged to extension. What is this new dimension which is the dimension (or measurer) of the three dimensions? It is number, and so with the conception of the Point we begin to count, count one, the individual unit as distinct from any form of extension. Thus Geometry passes into and is determined by Arithmetic; Form vanishes into and is measured by Number. Fundamentally we count by Points; objects numbered are mentally converted into Points.

Here we may add a word about counting, which we have had hitherto in connection with Solids and Lines, that is, in connection with objects. But counting also is to declare its independence and to be free, free as the Point, in its separation from all material things. Hence it comes that abstract counting properly begins with the Point, begins in its own right, no longer bound to a Cube or a Line. Thus the passage from the concrete to the abstract receives a great advance when number begins to be abstracted from its material substrate and to be grasped by the child as it is in itself.

Still at first the child has to count Points, which must be made visible. Hence it comes that the Point, this complete abstraction of all

body, must itself be re-embodied for the child. The Point, whose essence is the taking away of all material form, must be given a material form. The abstract must be made real, the ideal must be re-incarnated. The child has had the Point from the beginning, in Ball, Cube, Surface, Line, but not fully explicit, held fast in something alien to itself. But now it is abstracted, separated, self-included; yet just as this act of abstraction it must be endowed with a form. Here we again note the same process which we have found in all Abstract Magnitude: first the concrete object in which the Point is implicit; second, the abstraction of the Point; third, the return to the concrete object for the re-embodiment of the Point.

But what material shall be taken for such re-embodiment? Various small objects have been suggested, pebbles, shells, bits of wood, cork, clay; but a seed of some sort, such as a bean or lentil, contains the best suggestion of the Point. For the seed is that central germ which unfolds into a large line, such as the trunk of a tree; yea into a thousand lesser lines seen in root, branch, stem. Still further, it unfolds into the surface in the bark, or a thousand surfaces in the leaves — all of which are bringing forth the total solid, the vegetable as a whole. Finally in a self-returning cycle of time, usually the year, the seed too returns into itself, reproducing itself in

a thousand seeds possibly, and so completes its own genetic cycle.

In like manner the Point, starting as a germ implicit in the Sphere, unfolds through all the Gifts until it reaches itself again, being now explicit in the Point of Abstract Magnitude. Such is the suggestion of the seed, and this very seed ought to be planted by the child, in a box of earth if no other way is possible, and thus made a part of that garden-work which belongs to the kindergarden and gave to it originally its name. Thereby Nature will be felt to be one and harmonious, showing even in her vegetable process a deep correspondence with the movement of these Gifts, though they be only spatial, quantitative, and not of life.

The Point must, therefore, be declared to be a most important matter; its conception is absolutely necessary for the comprehension of the complete genetic movement of these Gifts. In fact, the genetic conception itself is embodied in the Point, which must at last be seized not merely as negative, but as positive and productive. For this reason it is the starting-point and the returning-point of the Gifts as well as the transition-point to the Occupations. Thus it is the pivot, and may be called distinctively the pivotal Gift.

The concentric element in surfaces and in lines vanishes in the Point, toward which they seem

to move as toward their source. They suggest the center for which they are seeking. So all matter, whatever be its form, manifests a seeking of the center, being outside of the same; on the surface of the earth the material object falls in a right line toward the center by gravitation; but in the free motion of the heavenly bodies are produced circles or ellipses round the center, analogous to these embodied concentric rings round the Point. In the case of the planet Saturn, concentric rings become visible encircling the body of the planet itself.

On the other hand, the concentric rings and sphere-shells suggest the movement outward from the Point or the creative center, in a series of successive circling waves, like those which flow from a pebble thrown into the placid surface of a lake. Or we may call up the vegetable world in one of its great divisions (the exogens) represented in the tree and its circling layers of wood telling of the circling years which have revolved round that plant as a living center and left behind upon it these memorials of their own concentric nature, which flings all passing time, and therewith all eternity, into cycles, the so-called cycles of the ages.

Thus we have found the Point to be active within itself, to have its own inner separation and self-projection, whereby not only the Point but the whole series of Quantitative Gifts make a

grand turn in their career, which is veritably the return. This will bring out also a new phase of concentrism, the inner or spiritual one, which will reveal all these Gifts returning through the Point toward their fountain-head in a succession of concentric cycles, till they reach their central genetic source, which is likewise a Point. Thus the outer concentrism with which we started in the Sphere, has become an inner one, and therein has profoundly justified itself as an element of these Gifts. The symbol has deepened itself into the thing symbolized, that which was given outwardly in a material object to the senses, is turning inward and is being transformed into the fundamental and the final spiritual fact of the entire process through which we have traveled.

So much by way of anticipation, for this phase of concentrism is something not yet fully unfolded. We must now grasp the Point as active, yea as self-active in a sense, as turning on itself and henceforth developing out of itself. Thus we pass to the following:

II. The Active or Internal Separation of Abstract Magnitudes. If the reader will look back to the Simple Separation of Abstract Magnitudes, the caption corresponding to the present one will be found, and the psychical connection will be suggested. Separation, there passive and

external, is here active, beginning with the Point, which carries its own inner, self-separating energy over into Line and Surface. Here we reach the axis, the pivot, the Point as turning-point.

The Gifts of Abstract Magnitude have, accordingly, been unfolded in their simply immediate separation — Surface, Line, Point. The preceding exposition has sought to give each of these elements its distinctive character. The outcome is the Point, already emphasized as the turning-point of the whole series of Quantitative Gifts; that is, the point where they begin to turn back to their starting-point.

Such is the first stage of the Psychosis of Abstract Magnitude, that of simple separation, or the immediate abstraction from the solid form previously given. But now we are to see this separation as active within itself, beginning with the Point as self-separating, and not separated from the outside, for instance, from length, breadth, or height (or thickness). This is the second stage of the Psychosis in the present sphere, inasmuch as that which was externally separated in the previous stage, now separates itself internally and becomes creative. The following will be the triple process:—

1. The Point as self-separating.
2. From Point to Line.
3. From Line to Surface.

Thus the Point is axial, divides within and projects itself into the Line, which, gifted with the creative nature of its parent, the Point, becomes also reproductive at every point and moves forth into the Surface, which in its turn will show the same creative energy. That is, both Line and Surface, being now generated of the Point, will inherit the latter's genetic power, and continue its process into the creation of the solid.

1. The Point must first be grasped as self-dividing, negating its negative nature manifested in its negation of space, and becoming positive or having position in space. The conception of the Point requires that it turn on its own axis; it is not a fixed, not a crystallized Point in thought; it is genetic, and first of all, self-genetic.

This is a difficult part of the subject and we may look at the Point again as the negation of length, breadth, and thickness, or of all three dimensions. Hence it is the extreme of abstraction in the present sphere. But the Point, as having this negative energy which cancels all extension, be it Space, Time, or Matter, must show its own inherent character, and so cancels itself as Point. That is, it must turn on itself as Point, projecting itself from itself and creating the Line. Thus it is genetic, and will proceed to reproduce all the Abstract Magnitudes and

then will pass to the Concrete. The result of its negative act cannot be mere nothingness, since its own destructive nature was that which was canceled. The immanent activity of the Point is that which makes it overcome itself and eject itself into a Line, continuing from the Line its genetic power till it reaches the solid.

2. The Point separating within itself and moving to another Point, produces the Line, into which the Point vanishes, as it were. The child lays a seed alongside another seed, repeats the act, and finds that it has a new element, the Line, which is the Point externalizing itself, or making the separation outside (between two Points) and not inside (as in the first stage). Hence this is explicitly the separative stage.

Point-laying, which produces the Line, is even more significant than stick-laying, inasmuch as the Line is given already in stick-laying, which is simply external combination. Here again we note the reproductive idea, implicit as yet, but which is to be made explicit in the Occupations, for instance in dotting, pricking, sewing, etc.

3. The Line, in general, moves into the Surface, having the same genetic power as the Point from which it is derived. The Line of seeds easily returns into itself and suggests the Surface by the outline which results.

Thus the Point has unfolded, having projected itself through the Line back into the Sur-

face, which we recollect, was the first abstraction in the process of Abstract Magnitude, whose end was the simple Point. But this Point has now come back to the Surface, has really produced it; yet the Surface, as already set forth, ended in the Point. So this last Surface has in it the return to the Point, which is taken up into it and makes it active, creative. That is, the Surface must now become self-separating like the Point, and project itself into the solid.

Though we embody the Point, ultimately we cannot behold it in vision, nor even image it. But we can image the Line as extended in space, or the activity of the Point moving into the Line. But the Point as such is just the negation of this extension. What then are we to do? We have to think the Point, not being able to perceive it or to image it; we must create it within by an act of thought, which is itself genetic. So we have to create the Point and then make it creative, so that of itself it moves out of itself and creates the Line.

Thus the Point is subjective, is our own, filled with the creativity of the Ego, which can negate all extension or externality, yet externalizes this very act. Hence the Point is said to have position, which cannot mean that it has a real place or locality in space, but is simply the act of negating all externalty made external—all of which can only be the work of the Ego.

So the Ego may for the nonce be deemed a Point which is self-active, self-separating, projecting itself into another Point which is itself as object.

We have now reached the Surface as created, being the product of the Point, wherewith this second stage of the present process is brought to a conclusion. But the Surface is not merely created, but also creative, having in itself the genetic energy of the Point, its origin. This, however, constitutes a new departure.

III. The Return to the Surface producing the Solid. — We must here distinguish between the Surface as the product of the Point, and the Surface as producing Concrete Magnitude, thus moving out of Abstract Magnitude.

When we reach the Surface it is manifest that we have returned to the beginning of the Gifts of Abstract Magnitude. This return completes the psychical movement of the present stage (Abstract Magnitude), which has shown its triple process. The Point (Tenth Gift) returns and connects with the Surface (Seventh Gift).

But the Surface now reached is no longer the first immediate Surface with which we started, when it was obtained by simple separation or abstraction. It has within itself the genetic element won by the Point, from which it has been produced by an inward process. So it must proceed at once to bring forth the Solid, for the

Surface now has the Point within itself as self-separating, and thus projects itself out of the abstract into the concrete.

We may note in the present connection that the three dimensions have been reproduced from the Point, which first unfolded into the Line (length), then this Line unfolded into Surface (length and breadth), and finally this Surface has unfolded into the Solid (length, breadth, and thickness).

The child will easily and of himself play this transition from Surface to Solid. He will make a fence out of his sticks for holding his seeds, as a farmer makes a bin for his wheat or potatoes. Or he may pile up his seeds, transforming the Surface into the Solid. He can thus construct a Cube or cuboidal figure, and suggest the beginning of the Building Gifts.

But having gone back to the Solid, it is manifest that we have moved out of the Gifts of Abstract Magnitude. They took for granted the Solid, from which they were abstracted; but having swept onward to the Point, they whirled about and have produced the Solid which was their pre-supposition in the first place.

Looking back at the Gifts of Abstract Magnitude, we note the Psychosis. First was the simple, passive separation from the outside, yet by the mind; second was the inner separation, which gave movement, and showed the active

separation; third is the return to the Surface, the first abstraction, yet now through the Point, and with the creativity of the Point, which genetically passes to the Solid, the next matter to be considered.

C. From Abstract back to Concrete Magnitude.— When the Surface has moved into the Solid, we have returned to the Cube, the beginning of the Building Gifts. This means that we have really produced the Derived Gifts, which start with the Gifts of Concrete Magnitude. From the Point we have derived Derivation, through the genetic movement already mentioned.

The previous process of abstraction was the mental separation of Surface, Line, Point, from the given Solid, but now we have returned from the Point, which we have found to be the central creative principle, and we have produced the Solid, with which the start was made.

Froebel repeatedly puts stress upon this return from the Point. The Solid has been "separated into Surface, Line and Point, which is its complete dissolution," yet this dissolution is not destruction but rather "the spiritualization of the material body," which must be the beginning of its genetic power. For this whole movement is like "the development of a tree out of the seed into trunk, branch, twig, leaf, flower, pistil and pollen," which last is the division to very

powder, yet also the beginning of the return, of the generative process. "Hence we must now in the opposite yet like manner go back to the first unity by bringing together and unifying" what has before been given in separation. (*Lange*, II. 575; *Miss Jarvis*, II. 333.)

In the same passage Froebel gives an illustration of how this transition from extreme division and separation back to collection and unification may be shown. The child sticks pins in a pincushion, whereby he finds the Points (now the pin-heads) uniting into a Line and then into a Surface. This is a phase of the return of which we have been speaking, and is the deep demand of the child's own Ego for completion. Froebel says: "Full of expression, collecting, unifying the spirit is the conjoining movement from Points to Lines, and from these again to formation." Soul-satisfying it is to the child, because it completes that soul's process, and leaves it not in distracted fragments. Especially in the Occupations will this movement be repeated in numerous varieties.

In another passage (*Lange*, II. 345; *Miss Jarvis*, II. 45, 46) Froebel speaks of all education as proceeding from a Point which has within itself the mentioned genetic power, being the "Point of germination." Training by development "recognizes this Point" as filled with all the child's future unfolding, "as the starting-point

and source of all true education," as carrying potentially within itself "the limitations, cause, and laws" of all the succeeding manifestations of the spirit. Thus Froebel uses the Point as a kind of counterpart of the Ego itself, and makes it the bearer, metaphorically at least, of the child's development.

We must see, therefore, that the Point is at last the Point of Return; it is the axis upon which the processes of the Gifts of Abstract Magnitude turn about and reproduce the Gifts of Concrete Magnitude. The Point has such generative energy, which, however, is not going to stop with the Gifts of Concrete Magnitude, but will complete the Return to the very beginning.

It is plain that we have come back to the Derived Gifts, which began with the Cube. From this followed the movement of Derivation till the Point was reached, which in one sense is derived, but in the other and deeper sense creates itself — that is, separates itself and projects itself into the Line, Surface, Solid. Such is the whirl back, in which Derivation derives itself and so is Origination. Or the Derived Gifts have reached back to the Originative Gift in this return to their fountain head.

We have already named the Second Gift — Sphere, Cube, and Cylinder — the Originative Gift, since from it were derived the other Gifts. But it has begotten a child which is also orgi-

native like itself, and has come back seeking its origin. The Point, which was itself derived, has now become the source of derivation; thus the stream turns back to its own head waters (say through the clouds) and furnishes its own supply.

III.

THE RETURN TO THE ORIGINATIVE GIFT.

Such is the final step now to be taken in this series of Returns which, however, constitute one grand Return from Point to Point.

Previously we reached the Derived Gifts in our journey back to their origin; but all derivation points to origination, and so our journey was not then complete. Accordingly we pass from the Derived Gifts, which start with the Third Gift, to the Second Gift, which has been already designated as originative. There we interlink the end of the chain with the beginning, and the cycle of the Quantitative Gifts is complete.

The Return, therefore, sweeps from Point to Point; that is, from the Point as explicit, free, genetic, back to the Point as implicit, undevel-

oped, potential, lying unborn in the heart of the Sphere, yet lustily struggling for birth. Thus the Point has generated itself, namely, the Point, which in its turn is self-generating. In a similar way, the acorn generates, through the vegetable process, the acorn which is also acorn-generating.

What have we gained by the movement? Gained all — gained our starting-point and its complete cycle of derivation. That implicit Point in the Sphere, with its whole creative energy we took for granted as our point of departure; whence did it come? We have found that it unfolds a Point which is not only generative, but self-generative, when conceived in its total sweep. Thus the Point has wheeled back and created its own starting-point, with which we began the process of the Gifts. That which was taken for granted is now proved, that which was immediate is now mediated, that which generated all the Gifts is now generated itself; the fiat of creation is itself created, the creator has created the creator, the producer has produced that which produces him.

The student may well contemplate this return to the Originative Gift (the Second) out of the Derived Series in his best thinking mood, for it is important, and not easy, and needs to be carefully considered. We have just seen how the Point being the culmination of the Derived Gifts,

becomes in its turn originative, generating the Line, Surface, Solid, and thence passing to the Sphere, the starting-point of the Quantitative Gifts, in fact of the entire series of Gifts and Occupations. Such is, then, the movement: the Originative once passed into the Derived, but the Derived has now passed back into the Originative, thus completing the cycle of the present series.

So we have come back to the central generative Point of the Sphere, with which we started the Second Gift and the Quantitative Series. But we have won a great experience in the process. We now know that this central Point, generating primarily the periphery of the Sphere, is the genetic principle out of which develops all geometric forms controlling Nature, and out of which comes the science of Mathematics in some of its most important aspects. The Point has gone through a whole series of incarnations, and has finally reproduced itself, or, we may say, the Sphere has created itself. The Ego has found the ideal center which is self-creative, or at least images the same; next it must make this generative principle a fact, which it will do in the Occupations or Qualitative Gifts. The Ego, having made the Sphere create itself ideally, must itself now create the Sphere really, putting it into a material shape. In this case the form is not merely given from the outside, but is

molded through its inner qualities; in other words the material in the Occupations must be transformed, since the central Point of the Gifts is now creative of Form.

It is true that we (the kindergardner) generated ideally all the Quantitative Gifts, but the child has had them given to him in material shape; now, however, he must produce or rather reproduce them.

Through giving to the child the Quantitative Gifts and having him go through their process, we have led him back to their creative source. When he reached the Point and saw it embodied in some object, and there laid the material Points together and formed a Line, and in like manner moved through the Surface into the Solid, he was getting the genetic Idea of the Gifts, he was changing from being the recipient of Form to the producer of Form.

The unseen center of the Sphere can be embodied, and thus seen by the child, so that the invisible creative Point is suggested. The round disc of Points with the Point at the center may suffice; but an orange cut in two will show in Nature the creative principle, the seed at the center, which may be taken as an embodied Point. That orange seed is the generative real Point which also reproduces itself through the process of Nature, as the return into itself.

The mind of the child through the discipline

of the cycle of the Gifts has won its ideal starting-point, and can now begin to generate that which at first it simply took for granted. Its next step is to produce what has been given to it, and to participate in the deepest principle of the educative process. Through the training which lies in the inner movement of these Gifts, the child has unfolded the germ of productivity itself, and is getting ready to go forth as the master of the material world.

And the child has specially gotten hold of the inner controlling principle of the Sphere, its essential quality, which he can now use for his own end. He can reproduce the Sphere in any pliable material, as clay or wax, for he is in possession of its creative thought — and so we are ready to pass to the Reproductive Gifts (Occupations).

OBSERVATIONS ON THE PRECEDING MOVEMENT.

1. The problem about numbering the Gifts comes up to every careful student for solution. As already said, we claim no right to settle this matter. But we may contribute our opinion along with other persons interested in the cause. It is our judgment that the first six Gifts should not be tampered with; let their numerical designation remain as Froebel gave it in the beginning. The following Gifts we would number in this way:—

Seventh Gift — The curvilinear Gift.
Eighth Gift — The Surface (tablets).
Ninth Gift — The Line (sticks and rings).
Tenth Gift — The Point (seeds, etc.).

In several manuals the last two designations are already employed. The Seventh and the Eighth would be the chief changes from the present numbering of the Gifts.

This method would be clear and logically adapted to the subject-matter. For it is illogical and confusing to give two numbers to the Line, as is now done, and only one to the Surface, the latter being also a much larger Gift. We may well feel a propriety in making the Point the

Tenth Gift. For ten is the end and the return of the decimal system to its beginning; 10 goes back to 1, and also has a sign of its own; ten has thus an inner correspondence with the Point, and in a degree suggests its character. Such congruences, we hold, have their meaning and educative influence; they are to be disregarded in the presence of weightier matters, but otherwise should be taken into the account. Let, then, the Point, which turns back to its beginning in order to go forward, be designated by that number in the system of numbers, which also turns back to its beginning in order to go forward.

2. The student may be at first somewhat confused by the quantity of the foregoing Returns, each of which is the third stage of the Psychosis and closes a special process, the whole of which then makes a transition to an antecedent, more comprehensive process.

The three Returns here set forth we shall recapitulate in their order and try to designate them more briefly and sharply.

First. When the Point produces through the Line the Surface, there is the Return from the Tenth to the Seventh Gifts, from the seeds (Points) to the tablets (Surfaces), from the end of Abstract Magnitude to the starting-point, which movement constitutes the cycle of the Gifts of Abstract Magnitude.

Second. When the Surface through its genetic energy moves into the Solid, there is the return from the Seventh to the Third Gift, or we may say, to the Cube and Cylinder of the Second Gift as derived forms. It is the Return from Abstract to Concrete Magnitude, and makes the Cycle of the included Gifts, or the totality of the Derived Gifts.

Third. The final Return is that from Cube and Cylinder to Sphere and Point of the Second Gift, which completes the cycle of the Quantitative Gifts, showing the Point proceeding from and then returning to the Point.

These three Returns are, however, but steps of one great Return. Still these steps should be carefully noted, as they constitute the connecting links of the different cycles of the Gifts to which they separately belong. Moreover they, each and all, are necessary to show the psychological process which underlies and organizes these Gifts. The Psychosis, the inner process of the Ego itself, is the creative principle of them, and is that which makes them educative in the deepest sense of the word. The child's Ego, potential, implicit, slumbering, is unfolded into reality and awakened to take possession of itself and of the world through the inherent psychical movement of these Gifts.

3. We may thus behold three cycles in this quantitative series of Gifts, one within the other,

till the central Point is reached (in fact we can in a way count four cycles). Here is again suggested the principle of concentrism, as the final outcome of the whole process. This, however, is an inner, spiritual concentrism, which is based on the return through the Point. Such return integrates the missing link in the three cycles before mentioned, making the same complete in themselves, yet an organic part of the total movement of the Gifts. (See table.)

Already we had the outer manifestation of concentrism in the Second Gift, where it showed itself in a number of shapes, as in the concentric forms of Sphere, Cube, and Cylinder. Concentrism repeated itself in the Surface and in the Line; thus it has accompanied us throughout the entire development of the quantitative Gifts. Such is what we call its symbolic appearance, its manifestation in outward shapes, which, however, suggest and carry the soul into the inward meaning. This suggestiveness of concentric shapes, whether spherical, circular, or rectilineal, has been already emphasized as giving the idea of completeness, of a self-returning totality, of the movement of all things outward from, and inward to, the central creative Point or Source.

But now these external forms of concentrism are seen to foreshadow the inner character and movement of the totality of the quantitative Gifts, which also show essentially three self-returning

cycles which are to be grasped through an inward representation. Here again triplicity makes itself valid.

4. This seems to be the best place for inserting a tabular statement of the entire series of the quantitative Gifts. The student can see at a glance all the divisions through which she has been moving in the foregoing exposition, and also their relation to one another and to the whole. Process within process is shown by the order; the threefold movement is seen to be the unifying principle in the largest as well as in the smallest portion. Wheel within wheel like intricate clock-work, yet all of it moving separately and together in harmony; the clock-work of the soul we may name it, just now, into which you look as through a transparent crystal covering. The child-soul is unfolding itself by playing with these Gifts, which also have a soul and its movement, though externalized in material objects. Let the student contemplate this concentrated epitome of all that has gone before and take it up within, identifying the same with her own Ego and its processes. For the soul of this tabular diagram is just the Psychosis, which is likewise her own soul's form and movement.

Let her trace in the table and at the same time assimilate in her thought the three grand Returns through the Point as seen in the divisions of the quantitative Gifts, since they are here indicated

Chapter Second. Quantitative Gifts.

- **I.** Originative — Sphere, Cube, Cylinder.
- **II.** Derived,
  - **A. Concrete magnitude.**
    - I. Rectilineal.
      1. Third Gift.
      2. Fourth and Fifth Gifts.
      3. Sixth Gift.
    - II. Curvilineal.
      1. Cylindrical division.
      2. Arc and Arch.
      3. Unity.
    - III. Unification (in architecture).
      1. Greek.
      2. Roman.
      3. Christian.
  - **B. Abstract magnitude.**
    - I. Simple separation.
      1. Surface (simple).
      2. Line.
      3. Point.
    - II. Inner separation.
      1. Point as self-separating.
      2. Point to Line.
      3. Line to surface (created)
    - III. Surface as creative or self-separating.
  - **C. Out of abstract to concrete.**
- **III.** From Derived back to Originative.

outwardly by number and word, which, however, are not merely to be memorized, but are to be re-created by the thinking Ego.

5. The attempt of man to return to his origin, to the first fountains of his being, has been celebrated in many ways. The hero of Northern legend, Sigfried, goes through his marvelous career and does his memorable deeds in the search to find out whence he sprang. Oedipus, in Greek story, must discover who were his parents in spite of the warning of the Oracle: "Mayst thou never know the truth of what thou art!" Still he has to know, and know himself, though fate smite him for his knowledge. The Bibles of the world try to tell to man, their follower, the nature of his origin and the very period of his creation. In a more daring spirit Hesiod unfolds the origin of the Gods themselves, the rulers and creators of man.

Strange to say, modern science has herein trodden in the footsteps of the old Mythus, which gives always some prophetic forecast of the future. Darwin is our latest hero, who has gone in search of the "Origin of the Species," really the Origin of the Human Species, and brought back Evolution, not simply of the spirit (which was known and believed before) but embodied in living forms, made visible in organisms. Nature's organic development has been incarnated by Darwin in his epos of our modern age, some-

what as Nature's inorganic development has been embodied by Froebel in these play-gifts for the little child. Like the descent and the ascent of the Point, so we are served to the descent and the ascent of man himself, in a line of re-incarnations from the beginning, showing an inner transforming power which clothes itself in an ordered succession of external living shapes.

The most colossal image of this self-return is found in Northern Mythology, which tells of the huge earth-serpent coiled around the whole terraqueous globe, and holding up the same in its circular fold by putting its tail into its mouth. Thus is our earth supported from falling into everlasting chaos, and held in its orbit of light by a self-returning cycle or perchance by several of them, as that serpent may have been long enough to have reached around the globe two or three times. Why not? Thus we may behold in it also a kind of Mythus of Concentrism.

6. Deeply implanted in the human soul is the idea of the Return, which has its place in religion also and expresses itself in the faith and hope of a return to the Divine Source. Man's destiny is to return to God, his Creator; he works, develops more and more, makes real his possibilties, yet the end is the getting back to the fountainhead. All religions make some attempt to embody in rite or to express in creed this infinite longing of the human heart, whose deepest aspir-

ation is "to see God," the creative Point of the great Ball whose periphery is the Universe. Thus our mortal journey is a going which also is a returning, or at least has in it the Return to the Primal Source as the very soul of its progress. Already we have seen the rectilineal passing into the curvilineal as its higher stage, in order that it may return into itself.

7. It will be recollected by the student of Dante that when the poet in his descent comes to the central Point of the earth-ball, he has to whirl about, he makes the grand turn, placing his head where his feet were before, ere he can begin the ascent, the movement upwards which is for him the Return. In order to emphasize its meaning, he stops to bid the reader think "what a point it was that I turned!" For Dante it was indeed the turning-point out of the deepest depth of the Inferno, to which hitherto had been his descent, but now came the ascent. Thus the mighty imagination of the world-poet has seized upon the globe itself as his Ball with its central Point, using the latter as the turning-point in the weightest of all human matters, namely the Return from Evil to Good, from Hell to Heaven, from Satan to God.

8. Froebel has given us a glimpse of the returning movement which was in his mind connected with stick-laying, a favorite play-gift of his. He notices how the Cube unfolds out of

the Sphere, and continues its development to the sticks; then how the latter pass back to the Sphere as their source. He claims stick-laying to be an educative means which has both these movements in it, the descending and the ascending (*abwärts vom Stäbchen bis zur Kugel, und aufwärts* von der *Kugel bis zum Stäbchen.* See the passage in *Lange*, II. 392; translation by *Miss Jarvis*, II. 123). Hardly more than this do we find anywhere in Froebel, that is, in the formulated statements of his procedure. The Return in its full sweep and bearing seems never to have been developed by him, though he has fitful flashes of it in a number of places. Already we have cited a significant gleam of his touching the return from the Point.

Froebel sees the process of his play-gifts most distinctly under the form of an image taken from vegetable nature. Over and over again he recurs to such an image for their illustration. In the essay on stick-laying just alluded to he considers "the Ball to be a flower-bud, which, when it blossoms, develops a multitude of stamens and pistils," which are linear chiefly. So he connects organically the Ball or Sphere with the sticks as lines.

9. But the most suggestive point of Return as witnessed in vegetable nature, is the seed, the true representative and embodiment of the Point. The apple is a Sphere which is determined by

the seed at the center, or the central Point. The apple unfolds from the seed, yet produces the seed as its end, the genetic part of itself, since the pulp of the apple exists to protect and to feed this reproductive element of itself. Such is the vegetable cycle already alluded to, with its descent on the one side and its ascent on the other. The animal cycle of generation has a similar process, though more concealed.

Surrounding the seed or in the seed itself is what largely sustains the life of animate creation. Man lives chiefly on seeds (cereals or nuts) and what envelops the seeds (fruit); that which reproduces the vegetable body through nature's vast digestive organs, reproduces his body through his inner apparatus for digestion. The little child, eating the apple, finds at its center the seed which is to produce the tree, and the tree is to produce the apple with its seed at the center. Thus the child actually lives in and through the vegetable cycle, which thereby develops his body; but he must see that cycle as a whole, which thereby develops, calls forth, educates his mind.

In the vegetable world, accordingly, we can behold both an inner and outer concentrism, as well as the suggested movement from the Point through Line, Surface, Solid, back to Point. There is, first, in the apple-tree an outer concentrism seen in its annual concentric layers of

wood. Secondly there is the inner concentrism or rather cycle, also annual, which we have already traced from seed to seed, involving the entire vegetable process. The Point (as seed) shoots into Lines (stem, branch, trunk) and even into Surfaces (leaves thousandfold), and also into the Solid of many kinds, producing them all on its creative journey back (or forward) to the Point (as seed), embodying in its forms the full sweep of both Abstract and Concrete Magnitudes.

Legend, too, has been busy with the seed, yea with the apple-seed, and has even given to a man the name of Apple-seed, with a kind of romantic, whimsical, yet symbolic turn of its many-hued kaleidoscope. This human Apple-seed had the inveterate habit of wandering about and planting apple-seeds, that is, himself, throughout the Mississippi Valley, where the Popular Tale has picked him up and keeps him alive and going still in an everlasting play-gift of planting apple-seeds, which children imitate in the kindergarden. Also he sang at his work, like the child, who sings into himself the deep germ of all growth just in his play. So little Johnny Apple-seed had his little play-song, even as Froebel had, and Homer too, for that matter. One of his songs we shall here set down, and therewith bring to a tiny musical close the present chapter.

I love to plant a little seed
Whose fruit I never see;
Some hungry stranger it will feed,
When it becomes a tree.

I love to sing a little song
Whose words attune the day,
And round me see the children throng
When I begin to play.

So I can never lonely be
Although I am alone,
I think the future apple tree
Which helps the man unknown

I sing my heart into the air,
And plant my way with seed,
The song sends music everywhere,
The tree will tell my deed.

CHAPTER THIRD.

THE OCCUPATIONS.

Through the discipline of the Gifts, the mind of the child has won its ideal starting-point; he has generated through the Point what he took for granted in the beginning; what was given him at first, he has now produced; out of derivation he has developed into origination. Moving with the process of the Gifts, he has become productive, creative; he has reached the inner, central, genetic Point out of which unfolds the external material world; from the quantitative or extensive principle he has passed to the qualitative or intensive. Or, we can say, from the recipient of Form in the Gifts he has unfolded into the producer of Form in the Occupations.

So the return from the Point to the Point means not only the closing of the cycle of the Gifts, but also the opening of the cycle of the Occupations. And this means not only the outer combination of what was already given, but also the inner transformation of it through its properties.

In the system of Play-gifts as a whole, we have already designated three grand sweeps or movements, of which we have now reached the third. This embraces what is usually called the Occupations — a term which has become so fully entrenched in the minds of kindergardners that it will have to be retained. To be sure, all these Play-gifts are occupations of the child, and often so called by Froebel himself, inasmuch as they occupy the child and furnish means of employment.

If, however, we wish to connect this third stage with the preceding one, and at the same time designate the difference between the two, we may call these the Qualitative Play-gifts, while the former are the Quantitative Play-gifts. The reason for such a designation will, we hope, be made clear from the following exposition.

It will be well to recall at this point the first stage also, the First Play-gift — the six Balls — which was named the Potential Gift, as containing implicitly all the rest. So we must expect in this third stage, that many things which were

hinted, intimated, suggested but not developed in the first stage, will now be brought out, made explicit in thought and given a name. The First Gift was also qualitative, hence we observe a return to it — which fact already points to the psychical process underlying the total sweep of the Play-gifts.

The question which is or ought to be uppermost in the mind of the student at this point is, What is the distinction between the second and third stages? Or, to put the same question in its ordinary form: What is the difference between the Gifts and the Occupations?

1. In the Occupations the child begins to deal with the inner, intensive, physical qualities of matter while in the Gifts he deals with the outer, extensive, mechanical relations of matter. When he perforates a piece of paper with a needle, or even dots it with a lead pencil, he is testing it, and is discovering through his test the inner quality or property of the object, say its pentrability or its tenacity. We call it an inner quality of the object, for he cannot see it or feel it directly; he has to test it by some sort of attack upon it, and then see or hear its response to his attack, he has to assail its individuality and make it show its mettle, its inner character — and this is the quality of which we speak. We can see in peace the extensive nature or form of a piece of matter, but we can find out its

intensive nature or quality only through a fight.

So the child opens his battle with all creation or at least with all nature, for he must know the inner quality of everything in his environment before he can be master. Let us now compare how he proceeds in the Gifts. He does not assail the Cubes or the Bricks in building; he puts them on top of one another, he combines them outwardly into some form, he does not attack them inwardly for some quality of theirs which he wishes to get at and to employ for his own purpose.

In the Gifts combination is the word and the fact, either by way of superposition or juxtaposition; in the Occupations transformation is the word and the fact, or inner change of the material, whereby its quality is manifested.

Such is the first emphatic distinction. Yet this we must see aright and not in excess. There is no denying that the Gifts — Ball, Cube and the rest — have also inner qualities of matter. They have hardness, impenetrability, a degree of elasticity, etc. And one quality of matter, the most universal, namely, gravity, has of necessity to be taken into account, in the Building Gifts. Yet even here gravity, though always present, is not explicit except in a few of the more complicated forms. The stress in these Gifts is upon the quantitative element, form, number and

measure — Geometry, Arithmetic and Mensuration. The qualitative element recedes into the background till brought to the front in the Occupations.

Elasticity is an inner quality of matter, not apparent till tested. When the elastic Ball is thrown against the floor, it rebounds, it asserts itself after being assailed, thus showing its inner quality. The Ball of the First Gift is rightly made elastic, this Gift being qualitative; but the Ball of the Second Gift starts the quantitative series and hence is indifferent to quality, as far as thought is concerned, though its material must undoubtedly show certain qualities. Hence not too much stress is to be placed upon the hardness of the second Ball, as is often done by kindergardners. The hardness or softness of the second Ball (or Sphere) really cuts no figure in the quantitative series; nobody ever speaks of it or thinks of it afterwards, in the course of these Gifts. It is true that Froebel sets the example in the present instance, but that example, we have agreed, is to be rationally followed, not always literally. And the rational ground of his quantitative Gifts must make them quite indifferent to the qualitative element.

In the Occupations, therefore, the child begins that great conquest of Nature through investigating and utilizing her inner qualities, which is the peculiar function of our own time. He

pries into her secrets literally, using some kind of a pry — a knife, a pin, a needle, or, it may be, merely his hand. And this brings us to the next chief difference between the present and the preceding stage — the implement.

2. In the Occupations the child is to be introduced to the use of implements. In the Gifts, which require only external combination, he can get along with his hand alone. But now he must enter into the heart of the object, he must overcome its resistance by new means, he needs something more than hand, finger, or finger-nail. He has to have a tool, which is a kind of specialized or intensified hand made to grip this and that shape of Nature in its very vitals.

The simple hand has in the tool a means or medium which works between itself and the object; a mediating principle lies in the tool, which is to mediate the grand opposition between Man and Nature. The tool which is turned upon the physical object with a certain quality is itself a physical object with a certain quality; thus Man directs Nature against Nature and thereby subjects her through herself as embodied in the implement. Or, we may say that Man, having investigated and discovered the relative qualities of Nature, turns the stronger quality against the weaker and thereby triumphs. The tool is, it may be said, the primal military weapon by

the aid of which the human being is to win and to secure his freedom against the overwhelming power of external Nature. The child is to be trained in the use of the implement, and to begin his training early, for he needs it in his very first years. A kind of military discipline it is, and he a kind of soldier, exercising himself in the opening yet ever-enduring battle of life.

Not without profound insight has man been defined as a tool-making animal. He seizes upon a quality of the physical object and turns it into his implement for mastering that refractory world surrounding him everywhere called Nature.

But why does he wish to master her? Otherwise she masters him, she determines him, he is not free.

Here we catch a glimpse of the grand ultimate end which man is seeking by the use of tools, namely, freedom. The great industrial age, and the great industrial peoples, those who make the most perfect tools, and who use them most perfectly, are in the last view working for a higher liberty, and are realizing not only material wealth but also free institutions. The locomotive, the telegraph, the sewing-machine are the mightiest liberators of the human race that the earth has yet seen; but they are simply huge tools which, once put into the hands of man and woman, will snap the adamantine fetters of Space, Time, and Matter, with which external Nature shackles every

child born into the world. The tool is, therefore, an instrument of freedom, and every blow struck by the workman upon his steam engine is, in the final outlook of life, a blow for freedom.

The child is to be trained to handle the tool as soon as he begins to show the need of it. In this way alone can he take possession of his spiritual heritage; through the tool he starts to become an active member of the wonderful industrial civilization which is the deepest fact of his epoch. We must not prolong his apprenticeship to the hand, though this be necessary at the beginning, for he must first get possession of his hand before he can use a tool. Still beyond a certain limit, hand-work becomes enslaving and pulls down the child, while tool-work is liberating, and draws him upward toward a more complete freedom.

In the Occupations when he begins Dotting, a pencil is put into his hand, which is a tool; in Perforation he must have some kind of a sharp tool and learn to use it with care, for he must find out that he can stick himself with the same weapon with which he sticks nature. This is a necessary part of the training, and cannot be set aside; still let there be no excess in exposing the child to danger. There is some danger in everything. It is dangerous to breathe, especially in the city, yet we cannot live without breathing; it is hazardous to open the eyes lest something get into

them, still we cannot see at all unless we look. So the tool is dangerous, but the child might as well be unborn as not to learn the use of it, and thereby expose himself to some danger.

We may note here the correspondence between the tool and its effect: the pointed pencil makes a point, the sharpened needle shows a corresponding puncture; the line of sharp points in the knife-blade produces the line in cutting the paper; the brush is a kind of surface applied to surfaces chiefly, and the paper knife requires surface, line or edge, and point to serve as an implement in folding. Thus the tool with its special quality makes its impress upon the object, whose refractory quality is thereby met and mastered.

It is, therefore, a great mistake to forbid the child the use of the tool in the Occupations. It is worse, it is a wrong, since it hinders or delays him in taking possession of his inheritance as a member of our industrial civilization. It cripples him as a tool-user, and hence as a tool-maker; it rears a lame member of the social order, it sins against the spirit of the age. Yet the attempt has been made to banish, as far as possible, the tool from the Occupations and to throw the child back solely upon his hand. But the opposite doctrine is the true one: introduce the tool as much as he can use it to advantage.

The point at which the tool should appear may

be stated: when the object can be made by the child more perfect through using the tool, the child must have it, and to keep it away from him is a mistake, yea a wrong. For the grand ideal of attainment is perfection, and to interfere with that is to strike at the root of all education, intellectual and moral. When the child can model his cube or his house a little better by means of a small modeling knife, it must be put into his hands; when he can fold his paper forms in a neater style with a paper-folder, let him have it in spite of any cast-iron rule to the contrary. For he is not merely to develop his hand, but chiefly is to develop perfection, whose ideal fleets before him and lures him onward.

The answer is often made: But we must make the hand perfect first. Not by any means; hand-training is not an end in itself, it is only a means. When the hand fails, the tool must be called for. In special vocations, like piano-playing or carpentry, a special hand-training is necessary, but this does not hold in the Occupations, whose object is to make, not a piano-player or a carpenter, but a man, whose ideal is perfection. "Be ye perfect," is the divine injunction, placing the Divine itself as the ideal to be followed.

Again we repeat that the culture of the hand frees the soul up to a certain point, but beyond that point enslaves it. There are hand-civilizations and there are tool-civilizations, The Ori-

entals chiefly belong to the former; we cannot compete with the Hindoos, the Chinese, or even the Arabians in the manual dexterity required in some of their fabrics. And if we of the Occident did train ourselves to such a competition, it would ruin us, it would enslave us. We use and make the tool, and the biggest kind of a tool, the machine, whose ultimate sacred end, we believe, is the freeing of man from the bonds of Nature. Among Oriental peoples we admire Japan, which is adopting the Occidental implement in its largest forms, and so is passing from a hand-civilization to a tool-civilization — certainly one of the great miracles of the modern world.

Accordingly, in going from the Gifts to the Occupations the child begins to move out of mere hand-work to tool-work, and therein is marching on a line with the development of his race.

3. We now come to the most important fact of the Occupations, indeed the one all-embracing fact of them, without which they would have no real meaning. This essential fact is that the child must henceforth go back and reproduce for himself what has been given him; he must make over anew what was previously made for him; he must return upon his work, and the forms which he once received and combined he has now to produce through his own activity.

So the child in the Occupations goes back and makes his Ball, his Cube, his Bricks, and pro-

duces his own Points and Lines and Surfaces. Out of clay he can model quite all of the Building Gifts and use them; he not only combines externally, but transforms internally, through some inner quality, his material. Thus he begins to make his own presuppositions, and to create for himself what he before simply accepted; he has opened his life's career of reconstructing what he once took for granted, and he cannot stop till he builds anew the old starting-point — and this not only outwardly but also inwardly, wherein lies the true educative value of the act.

And here we must note again the real meaning of the word Gift in the present connection. It signifies something given, taken for granted, presupposed; it thus represents the given world into which the child is born, and which determines him from every direction. This world is what he is to create over into his own and so possess; thus he makes his own presupposition, he determines his own determinant, and thereby attains freedom.

Froebel's Gifts are not, therefore, merely little presents to the little child, with which he may amuse himself, though they be all this too; they stand for something far deeper, nothing less than the educative movement of the individual and of the race, into which the child is to be inducted through his play with these Play-gifts. For man moves back in order to move forward; he

must reach behind and take up into himself his presuppositions, his given world, in order to reach forward and grasp the precious boon, the end of all striving, freedom.

Now, in the Occupations as here set forth, there is just this return to and reconstruction of what has been hitherto given in the Quantitative Gifts specially; the great realm of the extended, the spatial, in general, the realm of matter is transformed through its qualities into new quantitative shapes by the child. Undoubtedly there is still in the Occupations something given, namely the material to be transformed; so we may call them Gifts too, but of a different kind, namely, qualitative.

Particularly, then, do the Quantitative Gifts represent the given element, which, however, has to be taken up by the child, learned, appropriated. They have been called the alphabet of form, showing first the total form or solid, and then proceeding to surface, line, and point. The child, having learned this alphabet, applies it to the reproduction of form in the Occupations. Just as he proceeds from the total word to syllable, letter, and sound, and then reconstructs them in speech in order to express himself, so he does here. He has to get possession of the two alphabets, those of Form and of Speech, ere he can mould the silent yet soulful statue which is made of clay, or the speaking statue

(so called by an old Greek philosopher) which is made of the word. Thus for his self-utterance, which is self-realization, he is laying under contribution two sense-worlds, those of sight and of sound.

The Occupations, through this reproduction of material forms, introduce an industrial element; they connect closely with the useful arts of mankind. Sewing, weaving, modeling, drawing are some of the Occupations, and have been employed from time immemorial by the race for the production of its fabrics. But, in the case of the child, their object is primarily educative, not utilitarian; they are to develop the total man, not the weaver, the sempstress, the designer; they are to unfold that potential Ego into the reality, thereby giving mastery over all externality and furnishing a free home on this earth. Herein the Occupations lead the little child toward the great end of education, which is the remaking by and for himself of the made world, transforming it into the abode of freedom. The grand destiny of industry and of industrial progress is to transshape outer material Nature into man's own forms, so that he beholds on all sides the image of himself as a self-determined being, and dwells in a self-created universe, harmoniously realizing his divine nature. Thus he is returning to God, his creator and prototype, in the most profound religious sense.

And this activity of the child in the kindergarden reaches out beyond his individual self into the social sphere of which he is a member. In remaking these fabrics above mentioned, he is also remaking the Industrial Order, of which they are part and product originally, he is reproducing the great social organism, making himself a member thereof, and rebuilding it in his activity as it once built itself. Through these Occupations he becomes the little architect of society, which received him at his birth, but which he has to be eternally re-creating by his labor, that it be his own.

Moreover, this pre-formed world of matter which surrounds and determines the child, and which he has to re-form, has another suggestion— that of his institutional relations — which must here be taken into account. In fact just the total movement of the Gifts and Occupations as already unfolded is a preparation for institutional life and a discipline in institutional virtue. As the child is born into a pre-established order of Nature, so he is born into a pre-established ethical order, that of Law and Institutions; and as he is to take up and make over the one, so he is to take up and make over the other, both unto the end of his higher freedom. Nay, in going through the process of the one, that of Nature, as unfolded in the Gifts and Occupations, he is developing in himself the process of the other,

he is becoming unconsciously institutional. Family, State, Society, Church are the pre-established institutional order into which he comes through birth, and which nourish him with their spiritual mother's-milk during infancy. But this is not the end: he is to make them over, re-establish, reproduce them; becoming a man, he is to recreate the Family in his own household; he is perpetually to renew the State, for he is the final law-maker; especially is he to preserve and reconstruct the Social Order in accord with the new time and the new idea; nor let him forget the oldest of the old, the good grandmother of us all, the Church, and add to her aged bones a breath of his regenerating spirit, for she needs it.

It is, accordingly, the emphatic judgment of the educator, who has insight into his vocation, that these Gifts and Occupations transform the destructive spirit of the child into the constructive, and will make him a positive, not a negative being. The tender little soul is acquiring, through the habit of always re-forming the pre-formed in the realm of Nature, the far deeper habit of always re-establishing the pre-established in the realm of Spirit. He cannot rest in physical destruction nor in moral negation; he becomes a builder, not merely of an outward structure, but of the inner temple of life. Such a person will not become the architect of ruin on the one hand,

nor on the other an asphyxiated specimen of a soul stuck up somewhere in the museum of the past; neither stationary nor revolutionary, but evolutionary in the best sense; neither a fetich-worshiper at the one extreme, nor a God-denier at the other, but an adorer of the Universal Spirit into whose unity with himself he is to rise in vision and in deed.

On this career of spiritual return to his fountain head we start the child in the Occupations. He goes back and reshapes those forms which were first shaped for him and handed to him from the outside. It is a great beginning; he is the young Prometheus, not only the maker of outward forms of Nature, but the shaper of Man, the shaper of himself. For in this return and reconstruction of the previous Gifts, lurks the return and reconstruction of himself; once born, he is now being born again; once creator, he is now creating himself; in the eternal process of renewal and rejuvenation, he gets older and wiser and worthier. The days may whirl him onward in the time-stream, but he is always coming nearer to the everlasting source; he is unfolding into his true selfhood in self-creative unity with the Divine. Such is the ever-active palingenesis, the never-ceasing regeneration of the spirit, which is the inner process of all education worthy of the name, as well as the deepest religious act of the soul. The new birth is every day, the child has

to go through it even in play; playing with material shapes, with blocks of wood and lumps of clay, he is calling out his own soul, reshaping it, renewing it, moulding it into harmony with the divine order of the world. For the child to play the grand palingenesis of the soul, is a daring thought, appearing impious possibly at the first glance, yet it is just the deepest thought of Froebel, which he brings to the little child in play by means of these Gifts.

This reproduction is, then, the essential fact of the Occupations; in them the child is reproducing himself as a member of the social order about him, and is also in his way reproducing that social order. Thus he is getting possession of the institutional world by creating it anew — which, indeed, is the final end of all education.

Criticism. It is often said by kindergardners that the chief difference between the Gifts and the Occupations is that the former are to be put back into their boxes in the same condition in which they were taken out, while in the Occupations the material is to keep the shape impressed upon it by the child. In the one case the forms are permanent, in the other transitory. Manifestly this distinction is not inherent, but external and accidental. With a little glue or paste the building-blocks can be made to stick together, and so employed for permanent forms;

while the material of the Occupations can often be restored sufficiently after use that it may be employed again. The comparative cheapness and abundance of the Occupation material seem to be the main factors in determining the given distinction. The forms of the Gifts are easily made permanent, and the forms of the Occupations are easily made transitory; thus the criterion readily reverses itself — which fact makes it no criterion, that is, no essential criterion. As a useful device in manipulation, the distinction may be stated, but not by any means as the creative, genetic thought which differentiates the Gifts and Occupations.

So the given distinction does not distinguish, at least not in any vital sense. And this leads us to look into all the current distinctions in regard to the present subject, which, we have to think from our contact with kindergarden training, needs a critical overhauling.

It is important for the kindergardner to examine the terms which have been in common use to designate the difference between the Gifts and the Occupations. One of the most valuable lessons which the philosopher Kant has taught us is to criticise our categories — those fundamental words upon which our thought seems to repose as its final utterance. Something of this sort the student should attempt.

It is often said that the Gifts are a means of

impression, while the Occupations are a means of *expression*. But certainly when the child constructs with the Building Gifts something of its own, these are a means of expression. Such may be, indeed, his best expression; if his bent be architectural, there will be a better expression in this way for him than in any Occupation.

On the other hand, when the child models an object, say a Cube, all observers agree in saying that he receives a stronger and more exact impression of that object than when he simply sees it or even builds with it. Modeling, therefore, is a means of impression, one of the very best, probably better than any Gift, yet modeling is an Occupation in the kindergarden list. It takes but little testing to see that both the Gifts and Occupations are or can be a means of both expression and impression. So we have to say that these terms (or categories) do not give the difference sought for.

Why then have they been used and reiterated in kindergarden training-classes all over the world apparently? Undoubtedly an impression received from the Gifts, like that of the Cube, may be modeled or drawn in the Occupations, which fact is expression. But the opposite is also true; an impression may be and is expressed in the Gifts everywhere through its forms. And the same holds of the Occupations. So the time-honored distinction does not distinguish.

Another statement often found in the manuals and repeated from mouth to mouth as a kind of wonder-working formula, is that in the Gifts the child *investigates*, while in the Occupations he *creates*. This, however, is less true than the preceding. Certainly every kindergardner calls for creative activity in the Gifts, be it in building, in stick-laying or in the manifold production of forms. And on the other hand if we are to use the inner qualities of matter in the Occupations, they require investigation in a deeper sense than the Gifts. Still we have to do both in both, just as in the last case, and the distinction does not hold. The same is true of a rather pretty antithesis which is sometimes given: the Gifts are a key to the outside world, the Occupations a door to the inside world. Let the student try, and see if both the key and the door do not fit both the Gifts and Occupations. Certainly the kindergardner would affirm that the Gifts are educative, that they unlock the inside world of the child quite as much as the outside world.

But the favorite formulation of the above mentioned difference is that the Gifts are *analytic* and the Occupations *synthetic*. This statement is repeated in the manuals, being placed usually first, and is learned by heart as a kind of sacred infallible text which the student is to accept without questioning. But the kindergardner soon discovers, if she thinks at all, that her practice

contradicts the above distinction at every point. The very essence of the Building Gifts is that they are synthetic; to build is to put together. In the simplest of the Gifts, the third, the Cube is indeed divided, analyzed if you please, but only in order to be reunited, synthesized. It most deeply violates the spirit and the letter of Froebel to permit separation without restoration, and even to think analysis without synthesis. It may be declared unhesitatingly that every Gift has both analysis and synthesis, and has them not apart, but in a process which corresponds to that of mind, of the Ego. Indeed every Play-gift has to have such a process, else it would not be educative.

When we come to the Occupations we find that they too are both analytic and synthetic. The attack upon a piece of paper by a needle or a knife is a divisive or analytic act, though it is usually the first thing the child does in the Occupations. The same ultimate process of the Ego is seen everywhere in the Occupations, though taking on new forms and imparting new lessons.

One has sometimes to think that those who write books for kindergardners seem specially gifted in ridding themselves of all thought, which is indeed forever making trouble. We shall extract from a recent manual two propositions which follow each other directly:

1. "The Gifts are analytic, the Occupations synthetic."

2. "In the Gifts there is combination, in the Occupations the material is transformed." That is, the Gifts show synthesis, the Occupations analysis, while in the previous proposition the statement ran just the other way.

Such is an example of Froebel's law of opposites, but with the mediation left out. Still the author of the cited statements has unconsciously told the truth: there are both analysis and synthesis in both the Gifts and Occupations. But the main question is, In what way? Not as an unreconciled contradiction, but as the living, self-harmonizing process of the Ego, as the Psychosis.

So great has been the authority of this distinction that the student may wish to hear a little bit of its history. It undoubtedly proceeds from Hermann Goldammer, whose kindergarden Manual stands in deservedly high repute, though in the present case we have to criticise its position. Goldammer takes a good deal of credit to himself for having elaborated this distinction (see his *Occupations of the Kindergarden*, p. 10, Eng. trans.), which, however, he claims to derive from Froebel. But the passage in Froebel to which he alludes does not bear out his interpretation. Froebel speaks of the *return* out of the stage of division which has given surface, line,

point, or the abstract magnitudes of the Gifts. This return to a whole can be indicated, he thinks, by putting together pin-heads on a cushion; in this way we can see the point passing into the line, then the line inclosing a surface. The same thing can be shown by beads, etc. Such a procedure, however, is hardly an Occupation, but a Gift; the return which Froebel speaks of must be, therefore, through the Gifts. Moreover, in the passage (which is quite fragmentary), Froebel makes no distinction between Gifts and Occupations, not even in name. (See the passage in Lange's German edition of Froebel, *Pädagogik des Kindergartens*, s. 575. A translation has appeared in Miss Jarvis' second volume *Education by Development*, pp. 332–4.)

As far as we can see, therefore, Froebel does not make the distinction which Goldammer attributes to him. But supposing that he does, or supposing that we take Goldammer's distinction on its own merits, it still does not hold for all the Gifts and all the Occupations. The analytic principle would apply only to the point, line, and surface, or Gifts of abstract magnitude, which are not by any means all or even a fair half of the Gifts. On the other hand the synthetic principle would apply only to the industrial Occupations (such as sewing, pricking, weaving), which are not all of the Occupations. Hence Goldammer's distinction seems inadequate when

tested by a complete application to its subject-matter.

Still the question will rise in the mind of the reader: Is there no ground at all for the universal acceptance of these terms (analytic and synthetic) on the part of kindergardners? So much may be granted: if by the term *analytic* the second or separate stage in the total process of the Gifts and Occupations is meant, then the Gifts (quantitative) may be called analytic. Some such meaning may vaguely lie in the mind of the writer, though no definition of the kind can be found in any manual. Still further, if by the term *synthetic* the third stage, which is the return and reproduction of what has gone before, is meant, then the Occupations may be called synthetic. Some such meaning may have been felt in the word, but it certainly has not been expressed with any degree of definiteness. The fact, however, of such a return has been often declared, often by Froebel himself. But it is far-fetched to call it synthetic, to say the least.

Such is our critique of the categories, or terms ordinarily used to express the difference between the Gifts and Occupations. They indicate no essential difference, they hold true of one division as well as of the other, unless they be explained away into meaning something which they do not mean. Many kindergardners have

already felt and expressed the futility of the mentioned distinctions; still it would be a bad business to destroy even a poor foundation and leave nothing in its place. Hence our attempt to unfold a new set of distinctions, whose validity is now to be tested by the kindergarden tribunal sitting in judgment.

We must at this point return to the characteristic which we found to be the distinctive principle of the Occupations, namely Reproduction of the given, that is, of the Gifts. We are now ready to take an organic survey of the field which lies before us. Accordingly, in the ordering of the Occupations, we must employ the fact of the Reproduction of the Gifts (quantitative) as the fundamental principle, and hence as that which organizes the subject-matter. On this line we shall note the triple movement.

I. *The Reproduction of Concrete Magnitudes immediately, in their three dimensions — length, breadth, thickness.* The preceding solid Gifts, from the Second on, are to be reproduced in some formable material, such as clay or wax. Abstract Magnitudes (Surface, Line, Point) are present, but implicit, unseparated from their solids.

Here is the place of Modeling, we may call it the Plastic Occupation.

II. *The Reproduction of Abstract Magnitudes — Point, Line, Surface* — which are now

explicit on the one hand, and on the other hand are connected with or wrought into other material things.

Here lies distinctly the separative stage of the present sphere. In the first place, it reproduces the separative stage of the Derived Gifts, namely, the Abstract Magnitudes, which are not now given to the child, but are to be created by him in some way. In the second place, the twofoldness becomes manifest in the fact that the abstract (or ideal) forms — Point, Line, Surface — are to be made real, visible, nay, tangible in some material object; thus the abstract and the concrete (or the ideal and the real) are both present, though united. The great principle of the present sphere is that the Abstract Magnitudes, as thought or ideal, are the transforming power of the solid universe. Very profoundly, therefore, does the present stage reach back and connect with the corresponding stage in the Gifts.

This is the realm of what is often called the Economic Arts, and so we may name them the Industrial Occupations, being many and manifold. The plural indicates their multiplicity, which, indeed, springs from the separative character of the present stage.

III. The Reproduction of Concrete Magnitudes in and through the Abstract Magnitudes — Surface, Line (Outline) and Point. That is, the latter take up into themselves and reproduce

the solid object, which seems to have the three dimensions, but has not in reality.

Here we have Drawing, which we name the Graphic Occupation.

It is manifest that in these three sets of Occupations — the Plastic, the Industrial, and the Graphic — we have a Psychosis of Reproduction in this sphere. The first is immediate, in the material object; the second is separated, abstract, yet wrought into the material object; the third is the return to the Concrete, which is now reproduced through the Abstract.

We have made no attempt to arrange the various properties of matter which are brought out in the Occupations, such as elasticity, pliability, tenacity, etc. One of these properties, color, has a special place in the present division of the Play-Gifts. It is in one sense an outer visible property; still it is produced by an impingement of rays of light upon a material object. Thus color also is the result of an assault upon matter, which thereby is made to reveal some inner quality of itself; indeed color may be deemed the primary visible manifestation of the material world, showing something of its inner character by its outer Appearance in and through light. This property of matter also the child is to employ and to order in the Occupations.

I.

THE PLASTIC OCCUPATION.

This occupation is usually called Modeling in the kindergarden. Often the name of the material is added, which is generally clay. The word *plastic* suggests the formative character of the present Occupation, and connects it with Sculpture, which is supremely the Plastic Art and carries us back at once to ancient Greece, the home of the noblest statues. Sculpture takes the human shape in its material fullness, in its three dimensions, while Painting employs surface, line and point, or the Abstract Magnitudes.

The Plastic Occupation, therefore, seizes and reproduces the material object *immediately*, not as mediated through the Abstract Magnitudes already mentioned. Not every object made in

clay belongs to Modeling in the sense here given; a box molded out of clay is still a box.

We place Modeling first among the Occupations (or Qualitative Gifts), as it is the reproduction of Concrete Magnitudes, that is, of forms which have the three dimensions, length, breadth, and thickness. It returns to the first or solid Gifts and makes them over.

Modeling, therefore, takes the object immediately, in its sensuous fullness, and reproduces it in that fullness. The child seizes the object just as it is, without the Abstract Magnitudes, which come later. He creates his form out of the given material by direct fiat. Modeling is the most immediate manifestation of creative power which man can show, and for this reason has been celebrated in all ages. It teaches the child in the very beginning of his career, that the outer world in its most refractory elements is plastic, and will yield to his will and his thought. He starts, by means of Modeling, to realizing that the material universe is to be transformed by him, that he is to be the reshaper of Nature.

Though all matter can be modeled ultimately, still there are some materials especially appropriate for the child. He naturally takes to clay or mud; he begins to transform the very earth beneath his feet; what he stands upon, he will make over. Of all things given to man, the earth would seem to be the least dispensable,

yet the little child in his little way starts to reform the earth by means of mud-pies and dirt-houses.

In the kindergarden this primitive tendency of the child is not neglected. A fine sort of clay is used mainly, though the sand-pile too has its place, along with wax and other material of the kind. Turn the little fellow loose and let him form the earthy stuff, for thus he is really forming himself.

If the child goes back to the first Gift and commences to make over what he started with, he will model the Ball, the round Ball out of clay. This, to me at least, has a far-reaching suggestiveness, and I cannot help thinking something of the same kind enters the soul of the child, though dimly. For he is making out of dust the earth itself in form, and this is the very first thing he does in his creative activity; he reproduces as his earliest work an earth-ball made out of veritable earth, and possibly whirls it from his hand into space. The little child cannot help re-enacting the Creator of the Universe, from whom, indeed, comes that spiritual spark of his, which now manifests itself in a sudden scintillation by world-making.

So the child has begun to reproduce his grand outward presupposition, the very earth upon which he reposes as his primeval mother, forming it as does its Maker. Yet all this is done in play; he, in his first creative act, plays creation itself.

And if he be really God-sent, what else can he do?

The great educative fact in this action is that the child is unfolding what is deepest and best within him, what may be truly called the divine element of his nature. The original creative soul which made all things he shares in, and now he shows his participation in the same, he is developing the God-like in himself. Then, too, in forming the Ball, rounding it off to completeness, he is forming and rounding himself off; he is slowly finding that invisible center which he has as well as the Ball, and which always determines the outside, the periphery of existence.

In ordering the Occupations, Modeling is, accordingly, placed first, though in the Manuals it is often found the last or next to the last on the list. It may be said to represent better than any other Occupation the primordial creative act, as hinted in Art and in the Mythus of peoples. The keynote sounding all through the Occupations is reproduction; what has been given heretofore, is to be transformed; the child is to return and begin to make its starting-point.

The next thing to be considered is the inner quality which Modeling pre-supposes in the material, for this quality is now a main element in the present stage, which also bears the name of Qualitative Gifts. What peculiar property,

then, does matter reveal to the modeler, when it is handled or assailed?

It is evident that *formability* is the essential qualitative fact which underlies this Occupation. The external world is *formable*, capable of receiving a new shape from the hands of man, who has, indeed, just this as a leading part in his terrestrial vocation — to shape anew the material universe and to make it the image and the bearer of his spirit.

So the child begins his vocation, or an important part of it, in Modeling, being sent back to the beginning and led to re-form the pre-formed in the most immediate way possible. Such is the fundamental educative note struck here at the start of the Occupations, winning the child by its profound harmony with his own instinct, and training him to freedom, the great ethical end of his existence. For he has now to make or begin to make his own presuppositions, and that which before conditioned and determined him, he now conditions and determines out of his own volition. Thus he commences to hew out for himself the first stones which are to be built into the temple of freedom, of self-determination.

All manual training has to have this principle in view, in order to be educative; hand, eye, muscle, observation, perception are to be strengthened, still these are but means, in the final outlook, to the supreme end, which is the free man

in a free world among free men. With this idea the commonest act in the daily humdrum of life is to be filled and transfigured. The child makes a start when he models the visible world about him, thus recreating and perpetually renewing himself within as well as his environment without.

The child will take delight in getting acquainted with his material. He introduces himself to it by patting it, pinching it, punching it, testing its formability by thrusting his fingers into it, squeezing it and showing a multitude of other caresses. He must treat it somehow as he treats his mother whom he loves, sticking his forefinger into her eye, tweaking her nose, and pulling her hair. He even notes the response of the material which shows every act of his by a new form; very submissive is the clay before him, more submissive than his mother, who after all cannot have her eyes gouged out or her face scratched and beaten like the passive clay. The father will cry out: "Give the child some clay, my dear, and let him mould that anew, for your face is that which I wish to keep. That in my eye is already perfect and needs no re-modeling."

So the child will come to love the material, and will soon find its peculiar quality, called here formability, or the capacity of taking and retaining form. Hitherto, in the Gifts, his material was presented to him already formed, and he combined its given forms, but now he sees him-

self the maker of these given forms. So he beholds his Will made visible in the reproduction of form; every little act leaves its impress on the material; he, changing it, can change the outer world, and he comes to know himself as a world-transformer, outwardly and inwardly.

Formability. Repeatedly the attention of the reader has been called to the fact that Modeling rests upon the formable quality of matter, and that the formability of the material world enters into the consciousness of the child through the present Occupation specially. How important such a conception is in an industrial epoch, need not here be dwelt upon, as it may be considered later. But the earnest student will wish at this stage to take a rapid glance at the immediate formable elements around him.

1. The air you breathe is formable, supremely so; every word you speak is a forming of the air, and a transmission of that form indefinitely in every direction. Indeed the soundless breath is separated from the vast aerial mass, formed, individualized. An old Greek philosopher called words speaking statues, with a metaphor taken from the sculptor who hews the stone into shape. The child, beginning to speak with an infantile babble, is practicing a kind of modeling out of air, making rude, short-lived statues of speech, and training himself day in day out, till his air-model assumes the shape which is correct. In

learning to talk, he has to make over what nature has given, the very atmosphere around him, and impress upon it his ideas, yes himself. Thus all literature may be regarded as a kind of speaking art-gallery, extending down Time and giving form to the best thoughts of the best men of the ages.

But air is not visible, its forms appeal not to sight but to hearing, and thus are limited to one sense which gives merely succession and hence is laden with the vanishing. So we turn to a seen element, which is also formable.

2. Water is capable of form, yet it also soon loses its form, and thus shows to vision the eternal transformation, the never-ceasing death and birth of material form. Because of its formable character, children love to play in water, to wade, splash, swim in its soft embrace. It is so yielding, so responsive, so patient of every childish caprice, taking every blow and closing up the wound as if nothing could hurt it, or estrange its placid love. No wonder that the child is fond of the water, and is going to make its acquaintance in spite of all prohibitions.

Water has in it a sort of mediating principle, it carries heat and cold, it cleanses, it will pick up and bear off that other element, the earthy, when too persistent in its attentions. By nature water is transparent, yet is ready to receive nearly everything and hide it and spirit it away secretly in its bosom. Receptive, often colored

by what it receives, determined from without, water has been called the neutral principle in nature, a kind of impartial mean between all things.

Probably because of its formability, water was the first principle of the first philosophy of the Occident, which opens with Greek Thales and his Ionic School. Prophetic of the rising spirit of Greece was this early philosophy, hinting the Hellenic plastic art, and its tendency to form anew all things into the beautiful shape. "Water is best," cries Pindar, the Greek lyric poet, an expression which seems trivial to us moderns, but which really comes out of the depths of the Hellenic soul, which is formative above all others. Goethe, supremely the master of form both in nature and in art, has not failed to give poetic utterance to the formability of water in his great reconstruction of the Classic World in the Second Part of Faust. The sea in its movement is a tireless form-maker, suggesting a multitude of shapes from the rapid hand of the primeval artist, whose work the Greek imagination caught up and re-embodied in myth and art.

The child is, therefore, to learn about water through play, it is a genuine plaything for him. It may not be practicable to introduce it as a Play-gift into the kindergarden, still this often has, one may note in passing, its bathing-tub for

children, some of whom have to be made acquainted with a very important property of water before anything can be done with them.

The boy will take to the running stream or to the swimming pool; it is claimed by scientists that he still has rudimentary gills, which, though long disused, produce in him an itching for a little development. At any rate, swimming requires a mastery of an element, and has usually to be learned, though some boys have been known to swim at once by being thrown into a pool of water, paddling out like a dog or duck. But others drown in such a case, so there would seem to be a difference in the power of retaining ancestral traits.

3. Clay or earth is another formable element, and is the one with which we are chiefly concerned in the kindergarden. Yet we have to unite the two elements — earth and water — for our purpose. Water by itself is just a little too formable, it is changeable, perpetually shifting its form, like Proteus, the Old Man of the Sea in the Odyssey. It must get some stability, which is obtained by mixing it with the more refractory or possibly more friable earth, so that the fixed solid matter will have enough of the watery formable principle to be easily moulded. Moisture enters into all modeling material, which is to be wrought over when moist; then the humidity is allowed to evaporate and the form remains.

Thus the clay reverts to its hard or brittle, yet permanent nature, preserving, however, the shape into which it has been made.

Water has another striking quality: through an increase of heat it turns to a kind of air, vapor, and flies off into the atmosphere; on the other hand, through a diminution of heat it becomes a solid, earth-like, and loses its formability. From this point of view water is a kind of mean between air and earth, capable of turning to either of these elements, in form at least.

4. In this little survey of the physical elements and their formability, we must also mention the fourth one, fire, which takes form through itself, though hardly formable like the other three. Still man produces marvelous shapes of fire in pyrotechny, and the child will make a fiery ring by whirling a stick, one end of which is ignited.

Fire is a consumer of form, yet in its destructive act it assumes form. We like to see the many shapes which the blaze takes in the hearth, as it undoes and dissolves wood and coal and other material; it is good company and speaks to the soul literally with tongues of fire. But this formative power is more its own, coming from within, not so amenable to the hand of man, like the other elements. Still man gets control of it and turns its negative energy to the transformation of earth's most refractory materials. Iron will not dissolve in water or very slowly, but it

will melt in a hot flame, and even the diamond can be burnt up.

Fire too has its relation to the other elements; it must, like man, have air to breathe, it must have earth to feed on, and water will quench it, being its direct opposite and antagonist.

The child on every side exists in relation to these four primary elements of nature, which have the quality of formability in one way or other. They are his primordial physical environment which he has to transform in order to live. Morever in modeling he visibly employs two — earth, water, — working them over into new forms, so that he is becoming conscious of himself as the formative power of his world. Then he is secretly using in the same act two other elements — air (breath) and fire (heat).

Thus Modeling introduces the child into the primitive workshop of Nature, for she also is incessantly employing these four elements, keeping them in a perpetual round of formation and transformation, which constitutes the physical life of the planet. Nature has this secret plastic power, she is always forming and her first materials are the four elements; out of air, earth, water, fire, she shapes the apple as well as the globe. The child in modeling uses the same elements, also forming out of them in his way the apple and the objects around him. Thus he communes with the spirit of Nature, enters her workship

and learns her art. Indeed he has this formative instinct along with Nature, being derived himself from Nature, himself a product of her plastic soul and inheriting her bent in this direction.

Manifestly by means of the present Occupation something which lies far down in the unconscious nature of the child is called forth and begins to exercise itself, having an outlook upon his great end, namely freedom. He is learning the formability of the elements and therewith of the whole external world. In a parallel line he is discovering and practicing the formability of himself.

In Modeling, therefore, the child gets a premonition of what it can do and is to do with this material universe. Mould it, transform it, make it over into the house of freedom. That which is given first of all, the dust of the earth, is to be gathered up and shaped anew, primarily into a ball, which, as before said, is a reproduction of the original act of the Creator. The child cannot model without feeling his germinal power of creation budding within; he is getting the Promethean touch, world-transforming, yet also self-transforming.

The Implement. In order to obtain adequate possession of this quality of matter, formability, and to employ it for his purpose, the child should in due time be given an implement.

The opposite doctrine has often been declared

with emphasis, namely, that the child in the present Occupation should use no implement, but manipulate the clay simply with his hand. Undoubtedly he has first to obtain control of his hand, and by touch to understand his material, to feel it, to knead it, to test it in various ways. But he is likewise to employ the tool the moment he is ready for it. And that moment has arrived when he can make his work more perfect by means of it, or can save time and labor. To be sure, a perfect work is not to be asked of the little child, his outlines are expected to be rude and his handling crude. Still it must be demanded always that he strive toward perfection, and use every instrument for attaining it. Bad pedagogy assuredly is that which throws the child back upon his hand, his finger-nails, when he can do better with a tool. Such training runs counter to civilization itself, for it makes him spend his time at an economic disadvantage. We hold it to be a wrong to the child thus to fling him to the rear in the great race of life, whose success in these industrial days depends largely upon seizing the tool, the right tool at the right moment. It is often said by way of defense that he is kept back in order to acquire greater skill of the hand, but the greatest possible skill of the hand lies in the right use of tools. There is no purpose of making the child an artist in Modeling, but there is the purpose of

training him into a more perfect manhood, whose end is perfection itself. To lay down the proposition, "No tool in Modeling," is to the last degree narrowing, confining, destructive of the true aim of this Occupation; no supposed ultimate result in acquiring manual dexterity can possibly justify such a procedure. The supreme end is to make as perfect as possible what you make, any other end militating with that cannot be allowed.

The fact is, the child has to have a tool of some kind even in his most elementary work in Modeling. He cannot well cut the clay with his hand (often necessary is this careful cutting of it); he must have a thread if a sharp instrument is forbidden. "But he is not to use for dividing it a modeling knife." Such a rule is a getting back to nature with a vengeance — with a vengeance wreaked upon the child. Is the little one to be permitted to eat with knife and fork at home? to use a comb for its hair? And yet this senseless regulation has apparently become the first principle of some educators, having been issued from the headquarters of a city school system.

Already we have sought to impress the fact upon the reader that the child is going to the heart of his time, is training to participate in the civilization of his epoch, by using the tool. Not only a tool-user, but a tool-thinker, and so a tool-inventor he is getting to be, which is the spirit

underlying all machinery, whose end is the enfranchisement of man.

Psychology of Modeling. The great psychical fact in Modeling is that what the child has taken up into himself as a percept, he must now throw out of himself, separate from himself, and make into a new object. So Modeling becomes the most complete re-inforcement of vision, of sense-perception; it is the real complement and outer fulfillment of sensuous intuition, which, being an activity of the Intellect, finds its counterpart in this formative activity of the Will. The percept is the object taken up and internalized by the Ego, and then ideally projected again into the world, by an inner creative act. But the modeler of the object makes this inner percept itself into an outer shape, creating it not only ideally but also really, and projecting it into the world as a new object.

This is an act of Will, of distinctively creative power, by which the child remakes outwardly that which he has perceived internally. He is not satisfied simply to receive by sense-perception the made world outside of himself, he must make it over and thus assert himself as a world-creator, or as a free being who can reproduce his presuppositions, even his sensuous environment. Undoubtedly Modeling sharpens and intensifies the perceptive faculty, as the books say; but this is not its best discipline.

Modeling satisfies the deepest longing of the child because through it he shows his validity positively, and not negatively. He can destroy things, and thus manifest his Will; still he feels it to be a better work when he creates. He can make himself valid in the world by destruction; but then he is a devil. He knows himself divine when he produces; otherwise, as destroyer, he is ultimately destroying himself, which is not happy-making. Modeling is happy-making, because it is a positive Occupation, eternally self-building as well as world-building. All kindergardners know the stress which Froebel puts upon keeping the child positive in his play; if he unmakes anything, he must be led to unmake his unmaking, or to negate his negative act and return to the positive.

We may now say a few words concerning the order of Modeling in the kindergarden, as it has given rise to no little discussion. This order ought to be psychological, that is, in harmony with the child's own mind, his Ego.

I. The child may be sent to the sand-pile or to the clay, and allowed at first to play with it, to handle it and to form it at his own sweet will. Thus he is getting acquainted with his future companion, and likewise he is handed over for a time to his own caprice, or, as our friends, the Rousseauists, designate it, he is given his freedom. It is well to let him have a little experience

of his own inexperienced self, which is empty or nearly so, lacking apperceptive material for this sphere. He will soon get tired, having almost no content in his mind with which to work, and not being able to form what he has. At this point or perchance sooner, the kindergardner is to step in with her prescribed order, which is the second stage of the process.

II. The child is now to model what has been given hitherto, the Gifts, as they have been unfolded. Thus he begins to re-form the preformed, to make over what he has received from the outside. The reproductive activity of the Occupations is now the distinctive fact in the training of the child, who is to return upon what he has done previously, and to reproduce the shapes with which he played. This is still play, but a deeper phase of it, the more creative phase.

The child will go back and model the Ball, the significance of which act has been already set forth. Then he will pass to the Building Gifts and mould the bricks and other forms for his construction. He will reproduce the various curvilinear shapes, the convex, the concave, with their combinations. Thus he forms the material which he had once received ready-made, and is acquiring a deeper consciousness of his creative power over the external world, having modeled these solid shapes in the Gifts of Concrete Magnitude.

So, in like manner, the child is brought to re-

new and re-establish the pre-established in the realm of spirit; what he has done with the natural world, he is to do with the social and institutional world, into which also he has been born, and which he is to be perpetually making over into himself, renewing and reconstructing the same. Family, State, Society, Church were given him at birth, but he has to recreate them all, and thereby possess them through active participation. Thus he is attaining the institutional character, basis of all the virtues.

III. In this third stage, which may be called Free Modeling, the child is again to be handed over to himself, and is allowed to model what he pleases. He must not only be permitted, but encouraged to reproduce any object which strikes his fancy. He is now presented with his freedom a second time; let him turn to nature if he will, and form it to his heart's content.

But his inner condition is very different from that of the first stage, when he was thrown immediately upon his own resources, of which resources he had almost none. He now has a content, an apperceptive material upon which he can draw; he has been given a little world, of which he has been the modeler; let him next try to model the great world, or some fragment of it, in whatever way his bent drives him.

The truth is that previously when he was left simply to his empty caprice, he had no real free-

dom, he had no choice between order and disorder, between cosmos and chaos, between liberty and license. But when has an ordered whole, such as that given him by the previous Gifts, and its opposite to choose between, he has before him the two roads, the one leading to regulated freedom and the other to unbridled caprice. In the one case he is becoming the law-maker, in the other the law-breaker. When turned loose into nature at the start, he may choose between a stick and a stone for his modeling, but that is no educative choice, which must go far deeper and turn upon reproducing the order environing him, both material and spiritual.

Moreover, we may add here, that when the child or the grown man for that matter is left to run wild in nature, he is not free in the sense that he has gotten rid of all pre-established forms. Nature is herself the pre-established, the transmitted, the hereditary, and rules with an iron necessity. She is essentially unfree in her government, determining her subjects from the outside. The flight from society to nature is the underlying theme of Rousseau, who held it to be the grand liberation of man, but it is really his enslavement. Yet the child in his education is to taste and to taste deeply of nature in order that he may transform her, remodel her into the abode of his freedom.

Such, then, is the psychological process of

Modeling, which the kindergardner is to embody in her training of the children under her charge. All three stages belong to the educative unfolding of the child's Ego; he is to have his caprice at first, but is to be led out of it into true freedom through an established order, which in the present sphere is represented by the Gifts so-called.

The great objection. The secret enemies of Modeling, strange to say, are found chiefly among the kindergardners themselves. As the material is clay, this Occupation is set down as dirty work, and not fit for a lady. But many or indeed the most employments in this world are not exactly clean. The house has a mysterious tendency to make hidden collections of dust-particles which have usually to be spied out by the female eye. To get rid of dirt is naturally a dirty task. I notice that Bridget in sweeping the carpet raises a horrid cloud which drives me out of the house. Yet the thing has to be done, I suppose. So these kindergarden children must not be afraid of Mother Earth clinging to their clothes affectionately, or even kissing them at times smack in the face and leaving there a mark of her attachment. A little too much daintiness, offishness, squeamishness with twisted nose and contorted features one may see in some kindergardners while manipulating the "dirty stuff."

Undoubtedly we must have cleanliness, tidy

habits, good manners in these children. What is to be done? Turn them loose upon the sand pile, give them the clay lumps, but put them into some kind of a protecting garment for the occasion. And let the kindergardner herself lead the way by her example; let her deck herself in a neat apron, and then take hold with full hand and heart, not with hesitating finger-tips of dainty disgust. Thus is engendered a sympathy with toil and the toiler, with the laboring millions in the shops who are doing the work of the world in sweat and smoke and soot. Perchance this may be considered an advantage of the present Occupation over all the Gifts and other Occupations: it is a little dirty. So the child may take a lesson in keeping himself clean under adverse circumstances. What memories I have of that kindergardner whom once I saw in her white drapery modeling the plastic clay! To me her appearance was that of a Greek Goddess; she would have been a good model herself for the sculptor just in her modeling.

Not too fastidious, then, must we be in work, lest we get afflicted with a sentimental nausea at the sight of toiling humanity. The legend says that man was made of clay, and why should he not sometimes betray his heredity? One thing is certain: thou shalt return to dust. Whimsical Johnny Appleseed has touched upon this sub-

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II.

THE INDUSTRIAL OCCUPATIONS.

The stage of multiplicity is indicated by the plural in the title just given. Most of the Occupations of the kindergarden are found under the present head, as we shall more fully see later on.

The principle of Reproduction continues, but now it passes to Abstract Magnitudes, which are to show their creative and transforming power in the material world. The training to productivity which is so emphatically begun in the quantitative Gifts, is here realized more adequately than before, inasmuch as point, line, and surface become the moulds, so to speak, for shaping all matter.

Moreover an economic, social or sociological element enters with distinctness. To a certain

extent the child is to reproduce the industrial world in which he lives; he must take up into himself the principle of all industries, and he must make over within himself the movement of economic civilization. He is to re-enact the origin of society, creating it in miniature through these Occupations, and at the same time creating himself as a member of society. Thus the kindergarden becomes a little society making society, and these Occupations give the child a training in social genesis, bringing him to produce social relations and to put himself naturally into those relations.

The fundamental fact, then, of the present section of the Occupations is the reproduction of Abstract Magnitudes — point, line, surface — in material objects. In Modeling, we recollect, there was the immediate reproduction of the sensuous object; point, line, and surface, though present, were implicit; they were not consciously or distinctively brought out in the work. But now they become explicit, and appear in their own right, as it were; they mediate the form, and have their own separate place in thought and often in visible shape.

What name can we find to designate the present sphere? We have used the term *industrial*, as the Occupations herein embraced are mostly little miniature copies of the great industries of the world. They are also reproductive in the

sense already given, they reproduce the Gifts of Abstract Magnitude as Modeling has reproduced the Gifts of Concrete Magnitude. So we see a parallelism in movement between the Gifts and the Occupations, though each kind has its own meaning and its own place in the total process of the system of Play-gifts.

It is manifest that the present section of the Occupations is based upon separation throughout — the separation of what from what? The Abstract Magnitudes of geometry (or of space) are separated from their concrete shapes and employed to reproduce new objects. Hence this is the grand realm of the formation and transformation of matter, which is the character of the industrial realm of human activity. The Ego, in getting hold of and using these Abstract Magnitudes — point, line, surface — stands possessed of the ideal creative principle which dominates all form, and employs the same for its own reproductive purposes. The point, line, and surface belong to the material shape really, controlling it, limiting it; they also belong to the Ego ideally, which, therefore, controls them and uses them as its own. So this Ego, this mind, has now the fundamental ideal implement, the tool of all tools, for the mastering of the external world of matter.

In general, this industrial stage belongs to the second stage of the Psychosis, which moves

through, unites and orders all the Occupations, being the stage of separation, abstraction, division. We shall find by far the greatest number of separate Occupations under the present head, representing many diverse industries.

Yet the student must carefully bring to mind that in the broader sense, in the total sweep of the Gifts and Occupations this is the third stage, which we have in a general way designated as the reproductive. For now the abstract is reproduced and formed in the material, but this abstract element is itself a separation from the concrete. Thus the student will behold in every division of the Ego's process its total process at the same time — which is the foundation of all psychical knowledge worthy of the name. In this way alone can he be saved from the existing psychological Scylla and Charybdis: namely, from the crushing formalism and soul-destroying dilaceration of the old faculty-psychology, and on the other hand from the opposite absurdity, which seeks to do away with the faculties and denies in substance the separative power of the Ego. This must be seen in its eternal process, which divides the one and yet is one in all division.

We find a dominant note of the present sphere to be utility. Man takes the forms of nature, and makes them over into his own forms through point, line, surface, in order that they

may subserve his end, which lies outside of them in something else. Hence they are essentially a means, and we note here another phase of separation, that into means and end. Hence these are specially the useful or economical Occupations; even when decorative, they produce what decorates something else, the product is not self-end but a means, not so much artistic as utilitarian.

We must observe, however, that for the child the present Occupations are purely educative. They are to unfold his mind, not to give him a trade. To be sure, they may and will help him find his bent, his special talent, which may lead to a vocation; but their true use is to help make him a man first of all, to unfold him into a well-rounded human being, who is capable of many if not of all directions. In these days of machinery one trade is no certain dependence for the individual, who in such narrowness is liable to become tragic; he may have his means of sustenance taken away from him in a day by a new invention, which saves labor but destroys the man. So the child is by education to become the possibility of all trades, not the slave of one; thereby he meets the social problem of the time with a fair hope of victory. He is trained in these Occupations to a manifold industrial activity, in fact to the universal mastery of nature, whose forms he learns to reproduce and control for his

own behoof, through his intimacy with her creative sources.

In the present section we enter upon that portion of Froebel's system of Play-gifts in which there is the greatest room for difference, variety, multiplicity of all sorts. There is before us the vast field of human industry from which we may draw. So difference of opinion has here an enormous opportunity for exploiting itself. Some kindergardners will allow but few Occupations, some will run them up to thirty or more. Still, though the boundary lines of inclusion and exclusion be shifting and misty, we shall find a pretty general consensus of judgment concerning what are the most important Occupations. Thus there is a solid core of opinion round which the more volatile penumbra of individual preference and caprice hovers and shifts and struggles.

We shall now attempt to put into psychological order the main Occupations which the kindergarden organism has adopted. Three masses or divisions can be seen, which form the stages of the process of the present sphere. Let the reader be reminded once more that the characteristic of this sphere is the reproduction of Abstract Magnitudes. In the following outline, therefore, he is to observe the movement of this reproduction in its various phases.

A. Reproduction of Abstract Magnitudes in material immediately, for example through Mod-

eling. The point, line, and surface are reproduced, are copied as it were, or re-embodied in clay, or, it may be, in other material. The models here are the Gifts of Abstract Magnitude already set forth in the previous chapter.

B. Reproduction of Abstract Magnitudes in material, not by copying them but by making them change or transform the object. Point, line, and surface are now reproduced, not passively in the pliable clay, but actively changing the material. A line, modeled in wax and laid out on a surface, is simply passive; but when the same line holds the parts of the surface together, it is active and enters into the character of the object. A thread may represent a line taken by itself; but the same thread sewed into a fabric may change it into a garment. Thus point, line, and surface are not merely formable, they are forming and transforming; that is, they are twofold, they are an end as in the first stage, yet also a means.

Here, then, enters the realm of difference, into which we pass in the reproduction of Abstract Magnitudes. Point, line, surface — each is separately a shape yet makes a shape.

C. Reproduction of all the Abstract Magnitudes — point, line, surface — as distinct and separate, yet united into one shape. This is seen in the so-called peas-work, in which the separation of the present sphere is made complete and

visible in its three elements — point, line and surface — yet all three are joined together in one shape. This figure, therefore, is the whole embodiment and conclusion of the industrial Occupations, whose function is to reproduce Abstract Magnitudes, since they are all now reproduced and held in unity by this one form, and the end is just this reproduction.

Such is the inner psychical movement which we find in this industrial sphere of reproduction, essentially that of Abstract Magnitudes. In it we note the three stages of the Psychosis. The first we shall call *The Plastic Industrial Occupation*, in which you employ the material to make point, line, and surface. The second we shall call *The Useful Industrial Occupations*, in which you use point, line, and surface to transform the material. The third we shall call *The Graphic Industrial Occupation*, in which you use point, line, and surface, to make point, line, and surface; that is, to embody them in a material form whose end is to show them as point, line, surface.

The last stage evidently completes the cycle of the Industrial Occupations, since it shows the return of the whole series of Abstract Magnitudes, in its reproductive movement, back into itself. The point, line, and surface as active (second stage) have reproduced the point, line, and surface as passive (first stage), both of

which are united in the production of Peas-work (third stage).

Of course these statements are very general, and cannot be fully understood without the detailed exposition, to which they are merely a sign-board pointing out the way, This exposition we are now to give in the proposed order.

A. The Plastic Industrial Occupation. In this name we seek to designate the three leading facts of the subject. First, it is an Occupation, and hence reproductive; secondly, it is industrial, reproducing Abstract Magnitudes — point, line, surface; thirdly, it is plastic, reproducing them immediately, through Modeling, in solid material.

The present Occupation is different from the preceding (the Plastic Occupation), inasmuch as it reproduces, not the Gifts of Concrete Magnitude, but those of Abstract Magnitude, and hence belongs to the second stage in the complete Psychosis of the Occupations. Point, line, and surface are actually materialized by the child and that is here the object.

We should not, however, forget to state that, while the material in one sense determines the point, line, and surface, in another and deeper sense they determine the material, giving to it their own forms. They, so to speak, passively receive the material into their molds, and stop

with that; but in the next Occupation they will become active, even in their embodied shapes, and transform other material beside their own. Yet even in our present Occupation, point, line, and surface are not absolutely passive.

Accordingly, we are to consider the immediate reproduction of Abstract Magnitudes — point, line, surface — in material by means of Modeling. They are to be formed now in clay or in some other formable substance; the child is to re-create them, and then to employ them for his combinations. Previously in the Gifts these Abstract Magnitudes, in the shape of tablets, sticks, seeds, were given him already formed; but he is now to form them for himself and so make in this respect his own material.

In the Gifts the point, line, and surface, being ideal, were re-embodied for the child who could not yet grasp them in their abstraction from the concrete object. Still in playing with them as given things, he was getting their meaning. But here in the Occupations he is to take the next great step forward, he is to form his Abstract Magnitudes himself, not simply receive them already formed; thus he is doing with his hand what he is soon to conceive with his mind. He is projecting outwardly, what he in due season must project inwardly; then he has reached the abstraction or the ideal which is the creative type of all surfaces, lines, points.

The complete logical opposite of the solid or Concrete Magnitude would be the point, which has not length, breadth or thickness, is the total negation of the three dimensions, which belong to the reality. Hence the point is a thought, is ideal, is the absolute difference from the solid. In the present stage of Abstract Magnitude this difference is what is introduced, so that we might now expect the direct transition to the point as our beginning.

While this is true in thought, we must at the same time not leave out the movement to the point from the solid. Such is the immediate stage of the process before us; we must first proceed from the Concrete Magnitude of the previous stage to the Abstract Magnitude of the present one, starting with the surface which is nearest to the solid, and moving through the line to the point.

Moreover, Modeling is the means which connects this directly with the preceding stage, in which the solids were modeled. The shapes are indeed patterned after the Gifts of Abstract Magnitude, and manifest the same order which was shown there. This order we shall keep, preserving in it the idea of derivation from the preceding Gifts. That derivation, we recollect, should have directness, completeness, and symmetry. (See these terms illustrated under the head of Tablets.)

Accordingly the Gifts of Abstract Magnitude — surface, line, point — should be modeled in the Occupations. Otherwise the movement of reproduction is not complete nor symmetrical. Something is left out, and the result is a break in the genetic sequence. As a rule kindergardners do not have their children model point, line, surface; they have not hitherto distinctly seen that this was a necessary step in the development of the Occupations. Still they report that the children of themselves will make out of clay point, line, surface, through an instinctive bent to produce what has previously been given. The child who has received in the Gifts the ready-made shapes of the Abstract Magnitudes, cannot help reproducing them when he gets his hand upon some pliable material. And he is right; he is educating himself, and if we listen to the silent voice of his deed, we shall be able to supply a missing link in the kindergarden succession of Occupations. So we shall be justified in unfolding the surface, line, and point at the present stage.

1. The child is to form in his material the surface, which corresponds to the tablets, curvilineal and rectilineal. The clay cube may be taken and its side or sides cut off with a string or knife. The process of abstraction thus becomes visible, and is performed outwardly by the child. The triangle can be made by divid-

ing the brick. But here again comes the difficulty which was noticed in discussing the triangular tablets: some of them are not directly derivable from the preceding forms. In Modeling the derivation becomes specially important, for the shapes have to be formed by a principle genetically. The argument for the easily derivable tablets is strongly reinforced at this point. Also the shortening of the right-angled scalene triangle is doubtful from the standpoint of Modeling, for it cannot be derived but only copied from the made Gifts. It is evident that the inner genetic thread which runs through and hold together the whole series of Gifts and Occupations gets lost, and the child has to drop down to mere external imitation in his Modeling. Thus it loses the best part of its training value, which is to make him internally unify all that he externally shapes.

2. Following the order of the Gifts, as well as the movement from the concrete to the abstract, the child is next to model the line, represented previously by given sticks and rings. Let him now shape or cut his material and construct his figures out of what he has formed. Thus he is combining not only the pre-formed, but also the re-formed; his products may not be quite so perfect as what others have made for him, still they are his own and reveal him to himself as creative. In this way he is making his own

world, and taking his child-strides toward the goal of freedom.

3. At last he will model the point out of clay, or transform some solid into points by division. This is the extreme of separation, which he is to see in its complete abstraction. He will feel the concentration involved in its making and get the inner discipline. Then he will pass to combining the points till they suggest lines or surfaces. Thus he does with the made points what he once did with the given points.

In this way the child easily repeats in the Occupations what he has learned in the Gifts, yet with a new thought, that of reproducing his material. The kindergardner should not fail to go through (very rapidly it may be) the Gifts of Abstract Magnitude with material shaped by the child in order to deepen the creative lesson. He will take the lesson in his way, connecting his present activity with his previous one, and feeling in his work the ever-present hint of reproduction. All kinds of surfaces and lines — straight, curved, concentric — he can model or shape or cut in some way; thus he is learning to reconstruct his environment in accord with his own ideals, for even point, line, and surface are ideals which he is now realizing.

We have here reached the point which has been reproduced in material form by Modeling. But what about this point? It is in thought the com-

plete abstraction, the abstraction from length, breadth and thickness. Still the point is not the same as simple nothing; it is, and is active, else it would not be a point. It must still be abstraction; but from what can it now abstract? Only from itself. Thus the point is self-negative, self-repellent, self-projecting, and so projects itself into a line. The point is, therefore, in its last character, the turning-point, and moves out of itself into a line. The clay point, divided within itself, and made two points, suggests the line. The point, when reached, can go no further in its negative progress, but turns on itself, overcomes itself and goes in the other direction. Or we may say abstrusely, the point is the negation of negation, and so becomes positive.

Thus the point embodied moves out of itself, suggesting and also embodying the line. The point thereby becomes the transforming principle of matter, its creative energy will realize itself in line, outline, surface, solid. From this inner power of the point the material world is transformed. Here again we have to grasp the point as turning-point, or as transition-point, making the transition from its more passive and receptive condition in the modeling of Abstract Magnitudes to its active, generative, transforming character in the following stage. We have already noticed, however, that even in the preceding plastic stage the point, line and surface determine the form of

the material like a mould, and so are not wholly passive. But now the surface, line and specially the point being moulded in material go forth and mould material in their turn; they become implements themselves and call for implements. This brings us to the next stage.

B. The Useful Industrial Occupations. Here we enter distinctly the realm of utility; the Abstract Magnitudes have become a means, or an implement which is useful, whose end lies outside of itself. Thus the economic world dawns on us, especially in its educative import for the child, who is to recreate it in and for himself.

Accordingly we are to consider the second stage of the reproduction of Abstract Magnitudes in matter. Point, line and surface are still reproduced, but not for their own sake as in Modeling; they are employed in changing the object for another end than the mere reproduction of themselves. The threads of a carpet may be considered embodied lines made into a surface; but the lines and the surface are not there for their own sake, they serve a purpose beyond themselves, namely man's need.

Here the industrial principle begins to show itself. The material universe is to be transformed by means of point, line, surface, into objects which in some way are useful to man.

In Modeling the immediate end was to model a surface, line, point, in their own right, though they too had an ultimate end, namely the educative one for the child. But in the present stage the Abstract Magnitudes are made into a means for producing something which has utility; yet all of this is likewise educative for the child.

The movement will henceforth be different; it will be from the point toward the surface and the solid, though it will never quite reach the latter. The point now turns on itself, is by its own inherent nature the turning point, negating itself as simple point (which would be nothing at all). The point, to be point, must be axial and overcome itself into a line; it is not merely passive but genetic, self-generating, self-unfolding.

The point, having this creative energy within itself, will show its power over all matter, making the same into lines, surfaces, and thereby transforming the solid into new shapes. For the point can now generate any line and embody the same in whatever material it selects; it is verily the Ego in its externally creative energy making over the outer world.

Why put the useful industrial Occupations in the second or separative stage of the present movement? Because of the already mentioned division into means and end; in Modeling the Abstract Magnitudes were reproduced for themselves, as their own end; but now they are repro-

duced as a means for an end other than themselves. Hence this is sometimes called the realm of the useful Arts in contrast to the fine Arts. Such, however, is the division: the reproduction of Abstract Magnitudes separates within itself, and becomes a means for an end, in other words they get the principle of utility.

So the child is to have the discipline which comes from the industrial Occupations, not simply for the sake of the dexterity acquired, though this is not to be despised, but for the sake of the education. He is training to make himself useful by making useful things. He too must often transform himself into a means to an end, and give himself up to the small duties of life as well to the grand ultimate purpose of existence. As an ethical being he has to surrender himself to an institutional end which lies outside of him, and exists in its own right; yet, on the other hand, institutions have him as their end, and so give back to him his own in its highest form, namely, his freedom. The utilitarian side of education has its meaning, yes its ethical meaning, though it be not at all the whole of education.

The child, therefore, transforms his material for an end outside of the object so transformed, yet this end shows itself more or less distinctly in the form. We must see that in such an act he is transforming himself, he is making himself

useful in making useful things. An important element of human life and human relationship, yet not all; it is to have its due place in the child's education.

Under the present head nearly all the Occupations of the kindergarden are arranged in the manuals, varying usually from ten to twenty. We shall try to put the leading ones into an order which corresponds with the inner movement of the child's mind.

As the point is now active, we have to indicate this activity in the statement. In the first place we shall have to consider the point moving into the line as ideal. We have reached the point as self-repellent or self-projecting into a line. At the same time it embodies itself in material shape. The point breaks into space and shivers it to atoms, or indeed less than atoms, since it is the negation of all extension, has not length, breadth or thickness. Still the point is spatial, in order to be at all, and so must extend itself and become line. By itself it cannot be without being simply nothing, a blank. So the point must extend itself, project itself.

The point uttering (outering) itself into a line can be straight or curved, or concentric.

The Occupations which show or suggest the movement from point to line are Dotting, Perforating, Cutting, to which others are sometimes added.

In the second place the line moves to outline and to surface.

All of the preceding lines which return into one another suggest the surface, for instance, a circular row of dots or stitches. But Weaving, that most important and universal handicraft, shows the line as material moving into the surface as material; the ideal surface is transformed into a real substantial one before the eye. Here too we may place the Interlocking of Slats, the Intertwining of Paper, to which list other Occupations may be indefinitely added. The most common of these we shall try hereafter to order psychically.

We are still employing the forms of Abstract Magnitudes, material and non-material (for instance the thread and the cut line) for the purpose of transforming material objects and thus making them useful. Yet the final end in these Occupations for the child is educative, he is making himself useful in making useful things, he is training himself especially as a member of the social order. It is no objection to these Occupations that they are utilitarian; utility has its niche in this world of ours, and utility is not to be thrown out of the education of the child.

In the third place we reach the thought of return in the self-returning surface. That is, the surface now bends around and returns into itself, as did the point in order to produce the line, and

the line in order to produce the outline. Thus the primal character of the point perpetuates itself, or the total material surface goes back and re-enacts the first stage, the movement from point to line (and outline).

This is shown in the Occupation called cardboard modeling, in which the material surface is bent back into itself and produces a space-containing or hollow object. It is not a solid, though sometimes so designated; it would not belong to the present sphere, which is the reproduction of Abstract Magnitudes, if it were a solid. Its very nature is to be space-inclosing, to contain emptiness which can be filled. Thus it has a very important place in the useful Arts, being the example and prototype of all kinds of boxes, kettles, cups, pans, utensils for holding fluids, for surrounding them with a fixed surface which will not let them escape. In commerce the present form suggests what is known as hollow ware. Bottom, top, sides, it has, all of them surfaces connected or self-returning, and thus capable of holding things.

The following movement will, accordingly, show itself in the present stage, which also must reveal its order through the Psychosis. The student may find it to her profit to turn back to the Gifts of Abstract Magnitude, where the point unfolds itself ideally as turning-point, and to note the correspondence in movement.

Thus the inner, creative significance of these Gifts of Abstract Magnitude will become more deeply impressed upon the mind: —

1. Point moving into the Line (as suggested or ideal).

2. Line (as real) moving into the Surface (as suggested or ideal).

3. Surface (as real) moving into itself, or self-returning, which gives the suggested solid.

As this is the great field of selection and hence of variation, the kindergardner may notice some Occupations omitted and others added which are little used. The main thing, however, is the psychical process ordering these Occupapations, which is also the great educative fact. There may be dozens of Occupations in the present field, and they may well vary according to circumstances, and even according to locality. Still, in spite of all variations there is the fundamental psychical movement which is to hold them together in an active, yes self-active unity.

1. *Point to Line as ideal.* The Point as already unfolded in the Gifts of Abstract Magnitude is self-separating, self-projecting and thus moves into the Line ideally. From Point to Point lies the suggestion of the Line, though it may not be real. We start the useful industrial Occupations with such a Point, truly their starting-point, reproducing this element of Abstract

Magnitude in a material object as a means for making something.

(*a.*) *Dotting.* The Point is made real in a dot; it is thus immediate, material, the positive Point. An implement is employed, say a lead pencil; and now color can be introduced.

(*b.*) *Perforating.* The Point next penetrates matter, separates it, and thus indicates the separative stage. The Point is here not a dot but a puncture, asserts itself actively against the material object, passing from without to within. Again an implement comes into use, a pointed one. If the first Point be called positive, this may be named the negative Point, showing itself by the negation of matter, which is thereby seen to have no reality against it.

(*c.*) *Cutting.* The Point as perforation moves into a line, is continuously active in its division. Or the Point as separative returns to itself, to another Point, and so produces the separating line. The implement is now itself a continuous line of sharp Points, a needle projected or prolonged into an edged tool, the knife or scissors.

It may be here noticed that each of these Occupations — Dotting, Perforating, Cutting — has a corresponding implement — the dull Point in the pencil, the sharp Point in the needle, the sharp edge (line) in the knife-blade. The surface has an implement which is a surface in the brush or even in the flat of the hand. The tool is

like its work, we make a Point with a Point and a cut Line with a Line. The dot and the puncture in succession suggest the Line, and may be brought to suggest the surface of the outline. Still the Point in the present stage is real, while line, outline, and surface are ideal. But through the cut line repeating itself in the material we get the strip, string, the real line — with which we pass to the following stage.

The process which shows itself in Dotting, Perforating, Cutting, will be manifest to the careful student, who is to hold together all these seemingly distinct things in the unity of her thought. The kindergardner who keeps ever present and fresh in her soul this genetic movement in the simple Occupations is the one who is growing and is truly creative in her task, which becomes to her not a disconnected, distracted spirit-deadening routine, but a living fountain of inspiration. When playing with the children, she still keeps inwardly the generative thread which creates and unifies what she is doing.

Already we have come to the real Line, or the Line materialized, which is next to perform its part in these useful industrial Occupations. This embodied Line in its various forms is to be wrought in material objects of manifold kinds, transforming them and making them useful.

2. *Line to Surface as ideal.* Here too we very properly expect a movement, which connects

genetically the Occuptions of the present stage. As in the previous stage the real Point produced the ideal or suggested Line and they passed into the real or materialized Line, so now the real Line will produce the ideal or suggested Surface, and then pass over into the real Surface, dropping in its passage quite a series of industrial Occupations.

(*a.*) The real Line in these Occupations takes a number of shapes — thread, strip, string, slat, etc.; also it is made of a variety of materials. It will hold together points, lines, surfaces, and still remain a Line, showing itself the connecting element.

(1.) *Bead-stringing* — which is a stringing of points on a line, both of course being material.

(2.) *Straw-stringing* — which is a stringing of lines on a line, the straws being cut to a suitable length for this purpose. Also the perforation is not given as in beads, but is made by the child.

(3.) *Tablet-stringing* — which is a stringing of surfaces on a line. These surfaces may be represented by a button or a disc, with perforations already given or to be made with the implement.

These three Occupations may not be deemed very important, but they all have been and are still at times used in the kindergarden. It is at least worth while to know their place in the order.

Such is the Line as Line, wherein it is shown

taking np and holding together in line the Abstract Magnitudes — points, lines, surfaces. Yet it holds them together as distinct, in separation.

(*b.*) Line passes to outline, returning into itself. Thus we have the two parts: the real outline and the ideal or suggested surface. Here belong a number of important Occupations, since the outline lends itself specially to form-making, and reaches over toward drawing, which is at first a kind of outlining. The line now incloses the surface, which may be ideal or non-material, and also material or real.

(1.) *Strip-interlacing.* Paper strips are employed as lines in various combinations and particularly as outlines. These strips may be more or less broad, thus showing something of a surface; still the essence is linear. Interlacing of paper strips calls into play chiefly the quality of pliability in the material.

(2.) *Slat-interlocking.* We change the line from paper to wood, which shows a new property of matter here to be employed, namely elasticity. Slat-interlocking is distinguished from strip-interlacing by its independence, being held together by its own inner power, and not required to be pasted to some supporting object outside of itself. It may indeed lean as a whole against an external support, as it is still material; but it should not fall together within or droop, as paper strips are inclined to do, if set upright. The

forms produced by the interlocking of slats show an individuality of their own, an internal bond of connection which separates them from the preceding forms.

(3.) *Sewing in outline.* The real line or thread is made to pass through a perforation, and thus produce an outline. Sewing in one way or other employs point, line, and surface, as well as implement. It runs a line through a series of points, and thereby outlines a surface of some sort; in it we see the Abstract Magnitudes transforming the material object.

(*c.*) The real Line passes into the real Surface. We now behold the filling of the outline or the making of the surface, which is no longer simply suggested or outlined but is materialized.

Weaving is the Occupation which illustrates the preceding statement. It has usually two sets of lines (or threads) which cross one another and produce the surface. By weaving the vast variety of tissues is brought into existence, those fabrics of which man's clothing is chiefly made. Nature weaves in hundreds of ways both in the plant and in the animal. Life has a tendency to cover itself everywhere with its woven garment, whose weaving is a part of its own process. To live is to weave, and this inner tissue of his body man projects outside into his raiment, to hide his nakedness.

Weaving must, therefore, be pronounced a

great thing. The scattered threads of existence (physical and mental) it gathers into the connected surface, thus producing the fabric of life's unification (Lebenseinigung). After food comes raiment, which soon calls for some kind of weaving.

3. *Surface simple to self-returning.* We may consider the real surface to have been produced for us by Weaving. We have, accordingly, gotten our surface materialized, and next we are to transform it by the Abstract Magnitudes, thus showing some new industrial Occupations.

(*a.*) *Sewing* — which in its primal form is the fastening together of two material surfaces through point and line, also material. This is distinct from outline sewing, which was previously considered.

(*b.*) *Paper-work*, which has a number of varieties. Paper is the chief surface employed in the kindergarden; it is pliable, adjustable with a very slight reaction against assault; it is yielding, responsive, impressible; its general character is to receive easily and to preserve what it receives.

Paper will respond to the point and the line, which transform it in several significant ways. As in the Sewing we had the thread or the positive line, so now we have the cut line, or the negative line, which separates in becoming a part of the surface.

(1.) *Outside cutting*, or the separation of the surface round the border, whereby manifold shapes are produced.

(2.) *Inside cutting*, or the removal of the surface within, whereby manifold shapes are produced; that is, the paper inside the border is cut away. The inside cutting produces a corresponding outside cutting, which may be and often is preserved.

(3.) *Paper-folding;* the surface is not now cut away but is folded or duplicated; in this sense the present process is the opposite of the preceding. Yet paper-folding uses the line, now in the form of the crease, not of the cut.

All three Occupations diminish the surface of the paper, though in different ways, and run lines through it to produce figures.

(*c.*) *Box-work*. Now the surface returns into itself out of its form, and produces the box. This is usually called in the kindergarden cardboard modeling, but the term is a misnomer. In the first place it is not modeling at all, which properly belongs to plastic work; in the second place many other materials beside cardboard can be used, especially paper and wood and clay.

Thus we have reached the self-returning surface, quite as the point returned into itself (another point) and produced the line, quite as this line returned into itself and produced the outline with its suggested or inclosed surface.

We observe that the first genetic nature of the point has kept itself up through line and surface. The surface now concludes itself by producing not exactly a solid, but what seems such — a hollow solid.

As regards the shapes which Box-work assumes we may notice the following movement in them:

(1.) The surface returning simply into itself and producing the square and the round box, as well as their derivative shapes.

(2.) The box can be separated within by partitions of various kinds — the internally divided box.

(3.) Concentric boxes, square and round, can be reproduced in this Occupation by the child. As already set forth under the Gifts of Abstract Magnitude, concentrism belongs inherently to the line and the surface; at present it appears again, for the purpose of being embodied in the work of the child.

It has already been said that the psychical principle of the box remains the same, whatever be the material of which it is constructed. If the box be made of clay, the work is usually called modeling, and it is placed under clay-modeling. Psychically, however, it is box-work, or hollow-ware work, to which most kinds of pottery belong. A jar or vase is a round, self-returning surface, be it of stone, wood, or clay. The commercial term is hollow-ware, and that

brings out the idea of the utility of the object, it is good for containing something in its hollow portion.

But now the surface is to return into itself, and at the same time make point and line explicit, which it has hitherto held implicit within itself. Such is the completed return of the Abstract Magnitudes in the present stage.

C. The Graphic (self-reflecting) Industrial Occupation — Peas-work. Point, Line, Surface, picture themselves in their reality before passing into the picture or drawing, in which they are made to appear real.

In Peas-work the elements of Abstract Magnitude are reproduced as distinct and separate, yet united in one shape; thus there is the most complete separation, yet combined into unity. Point, Line, and Surface (Outline) are visible, material, explicit; also there is the return of the Surface into itself, which makes the object space-inclosing, hollow — a box. It is not solid, though sometimes declared to be so; it too holds things and resembles the crate of commerce, which is employed for the transportation of certain kinds of merchandise. Froebel calls it a transparent solid, though such a designation is not, and perhaps is not intended to be, strictly accurate.

We must see that Peas-work is a return to Modeling, the first or plastic stage of the In-

dustrial Occupations. The Point, Line, Surface (in outline) are reproduced separately in material, for their own sake, in order to show themselves in their own right, though they are united in a form which may be used for another purpose. Peas-work cannot be said to represent a useful economic art, like weaving, sewing, or box-making. In the kindergarden it would hardly appear, were it not for its educative purpose in showing the third stage in the movement of the industrial Occupations.

In Peas-work Point, Line, Surface (the Abstract Magnitudes) embody themselves in a material shape, whose end is just this embodiment of Point, Line, and Surface in a material shape. Or we may say that Point, Line, and Surface now reproduce themselves simply for the sake of manifesting their own self-reproduction. That is, they are here self-reflecting, graphic, making a picture of themselves, and so form the transition to Drawing.

Furthermore, they are means to an end, but this end does not lie outside of themselves as in the second stage, the useful industrial Occupations; they have become the means for their own self-manifestation. They are three, yet one in all distinctness, hence they are a very suggestive image to the Ego of itself.

Peas-work, like Box-work, is capable of many forms derived from the line.

1. Simple forms — curved or straight-lined.

2. Partitioned forms — with lines running inside and making partitions — crates.

3. Concentric forms — rectilineal and also curvilineal. Herein a new principle may be employed. It is not necessary for the concentric lines or surfaces to be parallel. We may put an octagon inside a cube, and still another figure inside the octagon. Thus through concentric Peas-work we begin to see form within form, not merely of a different size but of a different shape, and we seem to be looking into the transparent source of all forms. Concentrism again directs us toward the genetic center, yet by a new way, in the present Occupation. Hitherto we have seen difference of form outside the shapes, in separation, but now we behold it inside, the transformation is manifested as internal, even in the material object.

We may observe, therefore, in Peas-work the real embodiment of the entire movement of Point, Line, and Surface, which has shown itself in the foregoing industrial Occupations. Behold the Point (as pea) moving out of itself to another Point and so producing the Line here materialized; then this Line returns into itself (like the Point) and incloses the Surface; then this Surface returns into itself and incloses the spatial form of the Solid. All this is represented separately, in material objects, yet in a single shape.

Thus it is manifest that Peas-work is psychologically the third phase of the separative stage in the reproduction of Abstract Magnitudes. Separated completely to vision, yet self-returning and unified are all of them — Point, Line, Surface. This return, we may repeat, is the characteristic of the third phase of the Psychosis.

In Peas-work, accordingly, the reproduction of Abstract Magnitudes taken by themselves has completed itself. They unite in the form, yet the form is what holds them asunder and manifests them in their separation as well as in their unity. In Peas-work, therefore, the form has to show the Abstract Magnitudes, but previously in the useful industrial Occupations the Abstract Magnitudes had to show or to bring out the form. Yet in Peas-work also they bring out the form which in turn brings them out, namely, Point, Line, Surface.

In a sense we may regard Peas-work as the triumph of the Abstract Magnitudes over the Concrete, inasmuch as they take the solid and use it to manifest themselves. The ideal elements — Point, Line, Surface — thus indicates their mastery over the real, and subject it to their purpose, which is ultimately that of self-revelation. This mastery will come out more strongly in the next Occupation, that of Drawing.

Peas-work is the solid reduced to its skeleton, to that which simply holds itself together, yet

appearing still in all its dimensions — length, breadth, height. This actual skeleton is visible, standing there with bones, joints, perchance some ligaments showing themselves to the eye, which may well wonder what it all does mean. A skeleton of this whole solid world we may deem it in a way, a form concentrating in itself the simple elements of all magnitude. A transparent shape, in fact doubly transparent; we may see through not only its sides, but in it we may begin to see through the whole material universe.

But such is not yet the end: this skeleton which is still material, real, having length, breadth and height, is to vanish into a shadow; it is to become a veritable ghost — the ghost not the skeleton, of the solid world, which is thereby made to appear, is reduced simply to an appearance, and thus is compelled to tell the truth about itself. Herewith we begin to enter the Graphic Occupation — Drawing, which still reproduces the solid, but through the surface, line, and point. So the solid is projected into a surface in Drawing, but the surface is also projected into a solid which, however, still remains a surface. Thus our solid world is undergoing a deeper transformation of itself, it is turning to an image or representation, to a picture.

III.

THE GRAPHIC OCCUPATION.

In the kindergarden we designate this Occupation by its popular name, Drawing, which is, of course, to be retained. In the present work, however, the attempt is made to connect all the parts and stages of the Play-gifts by a terminology, in which their unity is hinted by the terms employed. Hence the above caption.

This is the third stage in the total movement of the Occupations, whose essence is, as already stated, the reproduction of what has before been given. There is a return to the Plastic Occupation, which reproduces the solid, or specially the Gifts of Concrete Magnitude; but this return is through the Industrial Occupations, which employed point, line, surface, or the Abstract Magnitudes, as means.

The Graphic Occupation is, therefore, the reproduction of the Concrete Magnitudes in and through the Abstract Magnitudes; point, line, surface now take up and reproduce the solid as their own, as themselves.

Accordingly, the material object in Drawing seems to have three dimensions, but has not in reality; it is reduced to a seeming, an appearance — and what else is it? A manifestation of something unseen is all matter, which thus is itself an appearance. Hence Drawing is a getting at the truth of things, and is or may be, in the right sense of the word, truer than the physical object itself, which it makes seem to be, but not really be. Herein Drawing participates in the function of all Art.

Abstract Magnitude has torn the solid to pieces, to very shreds, has dissolved it into points, lines, surfaces, and left it, first a skeleton, and then a shadow. But this whole solid world is now to be reconstructed after such a dissolution into its elements; it is to be rebuilt and made over into the temple of Art, whose function is to reveal to man the divinely creative spirit.

If we look back, we can now see that all the preceding Occupations, and the Gifts, too, were a kind of Drawing, or preparation for it, or intimation of it. We noticed it in the industrial Occupations — Sewing, Interlacing, Paper-folding, etc. We go further back to the stage of

Abstract Magnitude, and observe the incipient principle of Drawing in Stick-laying, and indeed in all forms produced by combining tablets, rings, and seeds. In Concrete-Magnitude, the Building Gifts ultimately go back to Drawing; in architecture the Drawing usually is made before the edifice and determines it, the surface-shape being projected into the solid one. The surface is ideal, and the solid has to be dipped into it and passed through it, has to receive the baptism of the ideal in Drawing, before the edifice or the temple can be constructed.

In many industries of the present time, the work is preceded by a Drawing, which shows the form ruling the raw material. Thus, if the industrial Occupations lead up to Drawing, the latter returns, so to speak, and reproduces them. Crude matter must be smelted by the brain and poured into an ideal mould through Drawing, ere it can be fully transformed by man for his use, So it comes that manufactures of a complicated nature require the draughtsman.

Drawing as the Graphic Occupation is at present to be considered in its educative aspect as it is brought to the little child, to whose training it is to contribute. The first thing asked for must be the psychical process involved in Drawing, which also is to develop the child's Ego in its peculiar field. Here again we shall observe the threefold process.

I. First is what may be called Free or Spontaneous Drawing (not Free-hand Drawing, which comes later). Let the child take a piece of chalk or pencil, having a surface before him suitable for his purpose; let him try to draw some solid object, that is, project it into a plane. Thus he begins his acquaintance with his materials, with himself; but he soon finds such acquaintance very limited, he has no possession of his material, none of his hand, none of line, point and surface. The child has found his limit, he is ready for help. Undoubtedly he loves to draw, so does the savage; Drawing is a profound racial instinct. The children's Drawings have their place in the educative process; they belong, however, to the immediate stage which must be transcended. The child himself, properly directed, will call for the next stage.

II. This is what may be named, in general, Prescriptive Drawing, that is, certain prescribed elements or principles control the previous Free Drawing of the child, who has therein run upon his limit. Now he needs, in fact calls for, instruction or prescription, which is nothing else than the experience of the past in the matter of Drawing. This twofoldness enters the present sphere — the activity of the child on the one hand proceeding from within, and the prescribed course or method on the other proceeding from

without, which, however, is to be taken up by the child and made his own, internalized.

In the Froebelian kindergarden the net-work of small squares is the fundamental prescriptive element in Drawing. This method has been bitterly attacked and warmly defended, and the controversy is still unsettled. Undoubtedly children at school before Froebel's time learned Drawing without such net-work; but he is looking out for very young children in this matter, kindergarden children, whose little hands need more help than those of older children. So there is a place for the net-work in Drawing.

Still this method can be abused. Not too much of it by any means; otherwise the very purpose of it will be destroyed. The kindergardner should always keep in mind this purpose: it is to train the child to do without such help. Here again there is the process — the process of getting rid of prescription through prescription. The stages thereof will indicate this fact.

Let us again look at the prescribed material, the netted surface, measured off on the basis of a square inch, which may be subdivided (but not too much). Thus the space into which the child is to project the solid object is meted and bounded for him in advance; the net-work is already a kind of outline into which he is to put the outline of the solid. In this way the child begins to get proportion, which depends upon a just measure-

ment, and for which he needs at first a given, ever-present standard, till his eye can judge and his hand can execute without any outside line.

1. First, the child is allowed to draw *freely* in this netted material, just as he drew *freely* in the first stage without any such netting. What will he do spontaneously with these given squares? At least he will make their acquaintance and test them in a number of ways. Before long, however, he will ask for the second stage of prescription, in which the element of instruction is more pronounced.

2. On these netted lines the child is to make lines of his own in a prescribed way, so that they suggest forms, geometric or symmetrical. That is, he starts from a Point, and reproduces Line and Surface, guided by these given lines and surfaces of the net-work, till he makes a pattern or figure of his own. Thus he is getting the first control of the elements of Abstract Magnitude — Point, Line, and Surface — for the purpose of Drawing, which elements are the basis of his future progress in this field.

This is now called usually Froebelian Drawing, though Froebel's conception of Drawing was wider. He intended the net-work and its forms to be a transition to freedom (see *Reminiscences*, pp. 234–5), and he claims that it leads to invention, when the child gets possession of the instrumentalities for such work. The same forms

can be brought out in Sewing, and also in Stick-laying, which, as already said, may be regarded as kinds of Drawing.

3. Finally the child is to pass from these regular mathematical forms into forms of beauty and of life; in fact he will show directly his geometric shapes transforming themselves into a house or other object by means of parallel lines. Still he draws on the netted paper, which, however, is the next thing to be discarded.

Thus the child has gone through a process of development in which prescription is the dominant fact, yet always with the end-in-view, which is freedom. Even the surface (paper or wood) is prescribed. But now, having gained the use of his tools, pencil, hand, and specially the use of Point, Line, and Surface, for reproducing the solid, he can begin the third stage.

III. This we may call Free-hand Drawing, as distinct from Free Drawing, which is the first stage. That is, the hand is now trained to freedom; at first it was not free, except in an unruly, capricious sense. For the muscles must also go to school and get their education before they can be the ready instrument of the mind in Drawing or in anything else.

Also there is freedom from the net-work now, as it has subserved its purpose. The question comes up, when shall this net-work be laid aside? No rule applicable to every child can be given;

here the judgment of the living teacher is the supreme necessity. If the child be kept too long in the prescribed lines, his spontaneity is hampered; if not long enough, he will be helpless or capricious in his freedom. If the kindergardner is alert and skillful, she will have means or devices by which the child will of himself move easily, quite imperceptibly, out of one stage to the other, though sometimes a jump has its advantages.

In the last stage we have reached the end and aim of Drawing, which was defined to be the reproduction of Concrete Magnitudes in and through Abstract Magnitudes. The question is often asked, Is the netted Drawing in Froebel really Drawing according to the given definition? Certainly it is not completed Drawing, but a stage in the development of Drawing. The child must get posession of the Abstract Magnitudes — Point, Line, Surface — before he can draw by their means. This process of getting possession of them is a part of the instruction in Drawing, is, in fact, just the so-called Froebelian Drawing, which we have sought to unfold above in its psychical movement.

With the present sphere, the Graphic Occupation, we have not only come to the end of the Occupations, but we have reached the conclusion of the whole cycle of Play-gifts. The child is now to return to the beginning, he is to go back

and draw all that has been given — the Gifts — and reproduce them in this final form. He can again start with Ball, Cube, and Cylinder, and project these solids into a plane by means of his Abstract Magnitudes — Point, Line, Surface — whose use he has to a certain extent acquired, or is acquiring.

The direct object of the Play-gifts is that the child obtain the mastery of Nature, of the physical world surrounding him on every side, though at the same time they unfold him inwardly. But in Drawing he has reduced the whole material universe to a picture, to a shadow of itself, which he makes, reproducing the solid world as an image, an appearance. That is, he creates or begins to create anew, in his own forms, the earth and the heavens too; he makes over all things visible and sensible, as if by a new creative fiat.

Thus Drawing, of all these Play-gifts, calls forth most absolutely the creativity of the child, and this is its supreme educative value. It also exercises perception, strengthens observation, confirms memory, evokes the imagination, and so on to the end of the string of little psychologic arguments, good enough, but little. The one grand all-inclusive and all-coercing argument is that of creativity; the Graphic Occupation develops the child as a world-maker; in it he begins to recreate all externality and to cast it into

an appearance. At the same time he is educating himself, transforming himself after the highest ideal, becoming a creator world-producing after the true image of his Creator.

Accordingly Drawing consummates yet ends the discipline of the Play-gifts, in which the child, after a long, varying, yet ever-triumphing struggle for mastery over Space, Time, and Matter, shows his ability to fling the whole material universe into a shadow, a mere *eidolon*, which he creates. Certainly in Nature he can go no further.

But what next? Environing the child on every side as well as entering into his very being is likewise an unseen non-material world, from which he draws the mother's milk of his spiritual sustenance, which world he is also to assimilate and to reproduce. This we may call the realm of Institutions — Family, the Social Order, State, Church. To all of these, in one way or other, the child (as well as the man) belongs; first they are given him, then he is to recreate them in his own life. The school, yes the kindergarden is a phase or part of this Institutional World, which must first be given to the child and then must be made over by him.

Froebel in the complete circuit of his educational scheme, has likewise elaborated the means for bringing this Institutional World to the little child. Such is the purpose and scope of the

PLAY-SONG as revealed in a well-known book of his (*Die Mutter-und-Kose-Lieder*), called the Book of Mother Play-songs. Accordingly at this point the student will make the transition out of the *Play-gift* into the *Play-song*, and connect in thought these two grand divisions of the Froebelian system.

The preceding exposition has unfolded the successive or scientific order, which necessarily has its standpoint in the theme or subject-matter. But when we come to the child, we must remember that he is all things at once, he is everything in its incipient stage; hence he must have both Play-gift and Play-song together at his and their starting-point. Or, as we have already often said, there must be an inter-related order, which adapts the successive or scientific order to the child, who is to be always regarded as a total being or Ego.

(As the present work on the Play-gifts connects directly with the Play-songs, the author may be permitted to refer to his work on the latter subject, which bears the title, *A Commentary on Froebel's Mother Play-songs.*)